APP/4/G

APPEAL AGAINST CHERWELL DISTRICT COUNCIL FOR THE DEVELOPMENT OF

LAND AT NORTH WEST BICESTER, CHARLOTTE AVENUE, BICESTER, OX27 8BP

REBUTTAL PROOF OF EVIDENCE

OF

MARK KIRBY

SUBMITTED ON BEHALF OF FIRETHORN DEVELOPMENTS LTD (THE APPELLANT)

ADDRESSING THE POINTS RAISED BY THE FOLLOWING:

PATRICK MOSS (ON BEHALF OF THE CHERWELL DISTRICT COUNCIL)

DAVID MILES MASON (ON BEHALF OF THE NORTH WEST BICESTER ALLIANCE)

THE BICESTER BIKE USERS GROUP

APPEAL

PLANNING INSPECTORATE REFERENCE: APP/C3105/W/23/3315849
CHERWELL DISTRICT COUNCIL REFERENCE: 21/01630/OUT

MAY 2023

1 Introduction

1.1 My name is Mark Kirby. I am a Director at Velocity Transport Planning (VTP) with more than 23 years of experience in transport planning and engineering in the UK. I have been engaged by Firethorn Developments Limited ('the Appellant') to advise on highways and transportation matters for the Proposed Development of land at North West Bicester, Charlotte Avenue, Bicester, OX27 8BP ('the Site'). I have prepared a Proof of Evidence which has been submitted to this Inquiry (App/4/A).

1.2 My Rebuttal Proof of Evidence (PoE) has been prepared in response to the transport matters raised with the Proofs of Evidence that have been prepared on behalf of the following:

(a) Cherwell District Council (CDC) – Patrick Moss;
(b) North West Bicester Alliance (NWBA) – David Miles Mason; and
(c) Bicester Bike Users Group (BBUG).

1.3 For ease of reference, when commenting on or clarifying the transport points raised, I have made reference to the paragraph numbering set out within the respective Proofs of Evidence.

2 Traffic Generation

2.1 Mr Moss acknowledges in paragraph 16 of his PoE that the North West Bicester Supplementary Planning Document (SPD) adopted in February 2016 [CD-4-5] identifies in paragraph 4.119 "*that planning applications should include Travel Plans which demonstrate how the design will enable at least 50% of trips originating in the development to be made by non-car means with the potential to increase to 60% by 2020*"

2.2 Mr Moss identifies that the Transport Assessment (TA) submitted with the Planning Application assumes that 40% of total person trips will be made by car. However, no evidence is provided within the TA or the Residential Travel Plan (RTA) to demonstrate that this target has been achieved in the Exemplar Development. As such, Mr Moss considers that the assumed modal split contained within the TA is not supported by any evidence base.

2.3 Mr Mason makes a similar observation within paragraph 4.10 of his PoE. Mr Mason notes that the aspirational shift from 50% to 40% of journeys by car would take place over the first years of a scheme, and therefore a robust design for the opening year of a scheme should be an assessment of 50% of journeys by car.

2.4 As the future year assessment of the full development was agreed with Oxfordshire County Council (OCC) to be undertaken for the end of the Local Plan period – 2031, and as the RTP that supports the Outline Planning Application is a Framework RTP, which is fully expected to be updated and refined as part of a future Reserved Matters Planning Application, it is considered appropriate to assess the SPD target cited in paragraph 2.1 above, which is 60% of non-car modes in the future year assessment. As we have assessed a future year of 2031, which is beyond the target year of 2020 cited within the SPD, this is considered to be a conservative approach.

2.5 Subject to planning permission being granted for the Proposed Development by the

Inspector in 2023, there is a very real prospect that the Reserved Matters Application, Detailed Design, and necessary Legal Agreements could all be addressed in 2024, allowing construction to commence in early 2025. Assuming a nominal build rate of 100 dwellings per year, first occupations could commence from 2026 and the 530 units could reasonably be completed and occupied by 2031. Whilst the above programme is only indicative, it is considered to be reasonable and therefore, a future year assessment of 2031 is considered to be appropriate.

2.6 It is acknowledged that in order to achieve the aspirational shift from 50% to 40% of all journeys by car, there must be an improved provision for other modes. Based on the location of the site, a key factor will be improved bus services to help achieve this target shift. The recent email correspondence from OCC dated 3 May 2023 and addressed to CDC, a copy of which is included in **ATTACHMENT A** of this rebuttal, identifies the requested "bus service contribution" from the Appellant and sets out the justification for this contribution. OCC state that "*the proposed contribution will secure either an improved service to Elmsbrook or continued operation of the post-April arrangements, whichever is appropriate at the time of occupation*."

2.7 In addition, the OCC justification identifies that "*ultimately the public transport strategy for the Eco-Town is to provide two new dedicated bus services, one north and one south of the railway, at a daytime frequency of up to every 10 minutes, linking the site with Bicester town centre and Bicester Village Railway Station. An effective 'turn up and go' bus service is required in order to offer residents and visitors associated with the development a viable alternative to the private car, to promote travel by public transport, and to achieve the low car modal share required to mitigate the traffic impact of the site. The transport assessment is based on this provision*."

2.8 Based on the above confirmation and justification from OCC, which notes that the transport assessment is based on the bus provisions that the identified contribution would support, I consider that the assessment of 40% of journeys by car in the future year of 2031 is not only reasonable but in line with the future aspirations of the North West Bicester SPD.

3 Travel Plan

3.1 A Framework RTP was provided with the Outline Planning Application. Further details, targets and assessment criteria are expected to be provided as part of a future Full RTP, which is expected to be refined as part of a future Reserved Matters Application and required to be agreed upon in full prior to occupation of any units. As this Full RTP will be prepared in the future, it will more accurately account for the bus services and infrastructure improvements at that time, accounting for the “bus service contribution” from the Appeal Site, which would have been agreed by then.

3.2 Mr Moss identifies in paragraph 29 of his PoE that the Exemplar Development has historically been served by the E1 bus service operating a half-hourly service linking the site to Bicester Centre and Bicester Village. It is acknowledged that the E1 bus service ceased in April 2023, and a subsequent temporary contract is in place providing an hourly service until May 2025.

3.3 Based on the recent correspondence from OCC[1], and as referenced above, the future bus provisions for the site will be greatly enhanced. The Full RTP will provide further

[1] Attachment A

details of the future bus provision as part of a future Reserved Matters Application.

4 Capacity Assessment

4.1 Whilst Mr Moss questions the suitability of 40% of all person trips being by car, it is considered that the future year assessments of 2031 have appropriately considered the level of vehicular activity associated with the Proposed Development for the reasons summarised in 4.3 below, particularly when considered in the context of the North West Bicester SPD.

4.2 Mr Mason makes a similar point in paragraph 4.15 of his PoE, noting that a 40% car mode share is likely to underestimate flows from the site, which in turn would lead to unacceptable queues and delays.

4.3 As I have identified, the Framework RTP is expected to be updated to a Full RTP as part of a future Reserved Matters Application, the requested "bus service contribution" from the Appellant is expected to support future bus provision that would result in a daytime frequency of one bus every 10 minutes, and the future year assessment that was agreed to be undertaken for 2031 would realistically cover a period when all units could be occupied. I therefore consider that the capacity assessments have been appropriately undertaken with the correct level of predicted car trips at 40% of total person trips in the future year of 2031.

4.4 Mr Mason has identified in paragraphs 5.5 to 5.9 of his PoE a number of discrepancies within the Traffic Flow Diagrams that were included in Appendix F of the TA [CD-1-28.2]. For clarity, these discrepancies are addressed below, and a revised set of Traffic Flows is included in **ATTACHMENT B** of this rebuttal. It must be noted that none of these perceived discrepancies will have any material impact on the technical work undertaken to date.

(a) Diagrams 1 & 2 – 2016 Base Traffic Flows
   (i) The 2016 BTM (Bicester Transport Model) traffic flows included junction movements at the B4100 Banbury Road junctions with Braeburn Avenue and Charlotte Avenue, and these flows are included in Diagrams 1 & 2.
   (ii) The existing Exemplar Development included a total of 393 dwellings, of which Phase 1 (94 dwellings) and Phase 2 (72 dwellings) would be accessed from Charlotte Avenue only. There are no alternative means of vehicular access for vehicles using Charlotte Avenue as the bus gate between Charlotte Avenue and Braeburn Avenue prevents through movements, other than for buses and non-motorised users.
   (iii) Diagrams A & B have been prepared to demonstrate the level of permitted vehicular activity associated with the Exemplar Development using the same agreed trips rates, distribution profile, and proportionate split of private and affordable housing as was used for the Proposed Development.
   (iv) The negative traffic flows that are identified near Cranberry Avenue are a simple calculation whereby the 2016 BTM traffic flows are considered against the permitted Exemplar Development traffic flows. As it is acknowledged that negative traffic flows are not possible, the revised 2016 Base Traffic Flow diagrams do not reference these negative flows along Cranberry Avenue.

(b) Diagrams 6 & 7 – 2031 Base Traffic Flows
   (i) Based on the methodology set out above, as the level of traffic associated with the Exemplar Development must be consistent, and the 2031 BTM traffic flows do not include the Proposed Development, the difference has been

assumed to be associated with traffic flows related to the adjacent Hawkwell Village Development (Planning Ref: 21/04275/OUT), the Primary School, and other consented uses on the Exemplar Development (phases 1 & 2).

(ii) These traffic flows are 'assigned' to Cranberry Avenue so as to specifically identify them, even though they are not assessed in detail.

(c) Diagrams 4 & 5 – Proposed Development Traffic Flows

(i) Mr Mason acknowledges in paragraph 5.25 of his PoE that a typographical error may have been made in relation to the arrival trips at Proposed Site Access D, which identifies that no vehicles would arrive at this access in the AM or the PM peak hour period.

(ii) This is acknowledged to be a typographical error, and attention is drawn to the fact that the full complement of vehicle movements is identified at the B4100 Banbury Road/Braeburn Avenue junction.

(iii) For ease of reference, Diagrams 4 & 5 have been updated to correct this typographical error.

(d) It is key to note that none of the above subtle revisions to the traffic flow diagrams would have any bearing or impact on the technical assessments undertaken to date.

4.5 Mr Mason notes in paragraph 5.10 that the TA did not provide copies of the PICADY modelling for the existing priority junctions of the B4100 Banbury Road with Braeburn Avenue or Charlotte Avenue. These are provided in **ATTACHMENT C** of this rebuttal for completeness.

4.6 Mr Mason notes in paragraph 5.14 that the TA did not provide a copy of the LINSIG modelling for the proposed traffic signal junction of the B4100 Banbury Road with Charlotte Avenue. This is provided in **ATTACHMENT D** of this rebuttal for completeness.

4.7 Whilst it is acknowledged that the output files were omitted from the TA, which was a simple oversight, there does not appear to be any comment from Mr Moss, Mr Mason, or the BBUG as to the results presented for the existing junction of the B4100 Banbury Road with Braeburn Avenue.

4.8 Mr Moss has identified in paragraph 35 of his PoE that "*the normal maximum accepted RFC is 0.85*" for a priority junction and that the RFC for Charlotte Avenue is identified as being 0.87 in the AM peak hour. Mr Mason makes the same observation in paragraph 5.11 of his PoE.

4.9 As the existing priority junction arrangement has an RFC that exceeds 0.85, in order to mitigate the impact of the traffic associated with the Proposed Development, the proposed mitigation scheme for the junction is to signalise the B4100 Banbury Road junction with Charlotte Avenue, which has been demonstrated to operate within capacity in the future year of 2031. Both Mr Moss[2] and Mr Mason[3] accept this. This is also acknowledged to be an acceptable arrangement by OCC, as confirmed within Transport Schedule #1 [CD-5-1] that the signalisation of this junction could be linked to the recently consented traffic signal arrangement at the A4095/B4100 junction.

4.10 OCC requested a contribution towards the signalisation of this junction, and it is expected that once the future modelling and design of this junction in conjunction with the A4095/B4100 junction has been undertaken, the operation of the local highway network between these two junctions will be even better than presented within the VTP TA.

[2] Paragraph 36 of the CDC PoE
[3] Paragraph 5.14 of the NWBA PoE

4.11 Notwithstanding that I consider that the junction of the B4100 Banbury Road with Charlotte Avenue will operate at an acceptable level in the future, which will improve further when linked to the recently permitted A4095/B4100 signal junction, Mr Moss raises a concern[4] in relation to the potential delay to buses as a result of the operation of the existing priority junction, which is identified to have a delay of 80 seconds.

4.12 In the first instance, by the time that the Proposed Development is fully occupied in 2031, and as a result of the financial contribution from the Proposed Development towards the signalisation of the B4100 Banbury Road junction with Charlotte Avenue and the bus improvements, it is expected that 40% of total trips from the Exemplar and Proposed Developments would be made by car. This will result in a reduction in existing car trips associated with the existing Exemplar Development, an element that has been factored into the BTM baseline traffic flows for 2031. In addition, the number of bus services will have significantly improved, and therefore there is likely to be fewer total vehicles pass through the junction as there will be as many as 6 buses an hour that have the capacity to accommodate considerably more total people than the same number of cars. As such, the overall delay of 80 seconds identified is not expected to have a detrimental impact on the bus services as there will be considerably more of these services per hour.

4.13 Mr Moss notes in paragraph 39 of his PoE that once the proposed traffic signal junction is introduced at the B4100 Banbury Road junction with Charlotte Avenue, the mean maximum queue on the Charlotte Avenue approach is identified as being 7.9 vehicles, which would extend to a distance of 42m back from the stop line. On the basis that the average vehicle length is considered to be 5.75m, this figure should actually be 45m. Mr Moss suggests that this queue would extend past the existing entrance to the small car park that currently serves the marketing suite for the Elmsbrook Development but that will eventually serve the residential units that replace the marketing suite.

4.14 Mr Moss suggests that a vehicle wishing to turn into the existing access to the marketing suite car park from Charlotte Avenue in the future could then block traffic behind it until the signals change and release the queue. It must be acknowledged that by the time the first units on the Appeal Site start to be occupied, the marketing suite is likely to be closed, and the 'replacement' residential properties provided and occupied.

4.15 I do not consider that the future arrangement would lead to a turning vehicle blocking traffic on Charlotte Avenue, as Mr Moss has failed to recognise the approved future parking arrangement that was signed off by CDC as part of the discharge of Condition 17 for Phase 1.

4.16 Condition 17 of the Exemplar planning consent states as follows:

> "*17. Notwithstanding the details submitted, a parking scheme for each phase, as identified in condition 2, shall be submitted to and approved in writing by the local planning authority prior to work commencing on the relevant phase. The approved parking shall thereafter be provided in accordance with the approved plan.*
>
> *Reason: In the interests of highway safety and to ensure that there is a satisfactory appearance to the development in accordance with Cherwell Local Plan policies C28 and C30.*"

[4] Paragraph 38 of the CDC PoE

4.17 Condition 17 was discharged on 13 November 2013, specifically in relation to Phase 1, which includes the location of the existing marketing suite near the junction of Charlotte Avenue with the B4100 Banbury Road, which will be redeveloped to provide residential properties once the marketing suite is closed. For completeness, **ATTACHMENT E** of this rebuttal includes the Confirmation of Clearance of Planning Condition Notice and a copy of the relevant plan showing the arrangement of Charlotte Avenue on the approach to the B4100 Banbury Road.

4.18 For ease of reference, an extract from Drawing AA2699C/1.1/100 Rev L is presented in **Figure 4-1**. It is clear from this figure that the permitted layout for Charlotte Avenue on the approach to the B4100 Banbury Road does not include any vehicle crossovers or private drives between the B4100 and what is now locally known as Morello Close (Community Street 1) and Chantenay Close (Community Street 5). As such, there is no risk of vehicles blocking traffic along Charlotte Avenue as they try to enter a future access or driveway, as no such arrangement will exist.

Figure 4-1: Extract from PRP Drawing - Site Plan Phase 1 (AA2699C/1.1/100 Rev L)

5 Charlotte Avenue Improvements

5.1 Mr Mason suggests in paragraph 6.2 of his PoE that as the Exemplar roads are not currently adopted, occupation of the Proposed Development should not be permitted until the Exemplar roads are adopted. Notwithstanding the fact that private roads currently provide access to the Exemplar Development without restricting any occupations prior to the roads being adopted, all access roads have been included within the application boundary, ensuring that a means of access is demonstrated from the Proposed Development to the adopted highway.

5.2 OCC has acknowledged that these roads are not currently adopted, and any proposed improvement schemes could only be progressed once the roads are adopted. As such, a contribution towards “local road improvements” along Charlotte Avenue, the full details of which have not been agreed upon by OCC yet, has been requested.

5.3 VTP has presented two potential “local road improvement” schemes for Charlotte Avenue. The first of these is presented on VTP Drawing 4600-1100-T-073 Rev A, a copy of which is included within TN009 [CD-2-43] and is located within Area 1, to the north of the Gagle Brook Primary School. The second potential improvement scheme is presented on VTP Drawing 4600-1100-T-029 Rev A, a copy of which is included within TN004 [CD-2-37] and is located within Area 2, to the south east of the Gagle Brook Primary School.

5.4 The improvements to Charlotte Avenue have been presented as potential highway improvements for OCC to consider. These improvements are not expected to be the final mitigation solutions for improvements to Charlotte Avenue but rather suggested opportunities for improvements that OCC have considered and requested contributions towards.

5.5 With regards to the suggested amendments to the carriageway widths, footway widths, road narrowings, traffic calming, road markings, crossing improvements, and general improvements to Charlotte Avenue, it is acknowledged that the OCC Street Design Guide (SDG) [CD-8-2.6] and LTN 1/20 [CD-8-2.8] are guidance documents that relate to the design of new infrastructure.

5.6 Mr Moss has suggested in paragraph 48 of his PoE that rather than a road widening scheme along the length of Charlotte Avenue to the north of the Gagle Brook Primary School that may have implications on trees, a priority one-way scheme could be implemented that would be cheaper and have no impact on the trees. This suggestion from Mr Moss is noted, and we expect that OCC will consider all options for a future improvement scheme along this location and at other locations along Charlotte Avenue.

5.7 It is also relevant to note that OCC confirmed to CDC in the email dated 9 March 2023[5], that "*in fact I [OCC] think a suitable solution could be found without removing the trees*."

5.8 The suggested highway improvement schemes could include the removal of the build-outs but could also propose the introduction of raised tables, which form a recognised traffic calming feature to ensure vehicles approach with caution, thus still ensuring that vulnerable road users, such as children crossing the road, can do so safely.

6 The Adjacent Highway Network

6.1 Mr Mason confirms in paragraph 3.10 of his PoE that the A4095 Southwold Lane/B4100 Banbury Road junction is proposed to be reconfigured as a traffic signal-controlled junction. This improvement scheme was granted planning permission by OCC on 16 November 2021.

6.2 For ease of reference, the layout of the permitted traffic signal-controlled junction, as approved by OCC, is included in **ATTACHMENT F** of this rebuttal.

[5] Mark Kirby Proof of Evidence – Appendix B

6.3 As the traffic signal-controlled scheme was consented after the submission of the Planning Application, and as the Appeal Site forms part of the wider North West Bicester Masterplan for up to 6,000 new dwellings, the assessment of this proposed traffic signal-controlled junction will have accounted for all vehicular and non-vehicular impacts associated with the Proposed Development as it would have formed part of the residual cumulative impact assessment.

6.4 Following recent discussions with CDC and OCC, it is understood that the full funding for this highway improvement scheme has been allocated, and therefore, there would be no reason to assume that these works might be delayed whilst waiting for pooled contributions from a number of different developments to be collected.

6.5 Mr Mason comments in paragraph 3.13 that a traffic survey was undertaken by the ETPG on Tuesday 14 March 2023, which observed traffic queuing on the approach to the A4095 to a point that extended northward across the B4100 Banbury Road/Charlotte Avenue.

6.6 Whilst no evidence of these traffic surveys and/or queues is provided, and whilst there is no reason to doubt the validity of these traffic surveys, as the proposed signalised junction improvement scheme has not been implemented, nor has the proposed traffic signal improvement of the B4100 Banbury Road/Charlotte Avenue junction been implemented, it is considered that these traffic surveys would not be representative of future conditions.

6.7 OCC acknowledged that the future implementation of traffic signals at the B4100 Banbury Road/Charlotte Avenue junction could be carefully designed and modelled in conjunction with the upgraded A4095/B4100 junction[6] , and a proportionate contribution was therefore requested towards the future upgrade of the B4100 Banbury Road/Charlotte Avenue junction.

6.8 I reiterate that the baseline traffic data that has been used for all of the traffic assessments that support the application are all based on the BTM traffic model. The use of the BTM was agreed to be the appropriate approach with regards to assessing the potential impacts associated with the Proposed Development in a future year of 2031 in order to ensure that all the cumulative impacts associated with the wider Local Plan Developments are accounted for.

7 Parking and Waiting

7.1 It is acknowledged that the ETPG have undertaken numerous comprehensive traffic and parking surveys associated with the existing operation of the Gagle Brook Primary School. Whilst details of these surveys have not been provided, there is no reason to assume that the observed results are not accurate.

7.2 It is acknowledged that a number of existing pupils attending the Gagle Brook Primary School travel to the school from areas such as Caversfield, which is located outside of the North West Bicester Masterplan area and to the east of the Exemplar Development. Even though the full details of how many children might currently travel to and from the school from beyond the Exemplar Development, and how these children might travel, is not defined, it must be acknowledged that as the North West Bicester Masterplan expands, the demand for more places at the school will increase.

[6] OCC – Transport Schedule #1, page 12, paragraph 3 [CD-5-1]

7.3 To put this into context, the future demand on the Gagle Brook Primary School will include primary school-aged children from the existing permitted 393 dwellings at the Exemplar Development, the 530 dwellings associated with the Proposed Development, and the adjacent mixed-use development at Hawkwell Village Development for up to 3,100 dwellings and other land uses (Planning Ref 21/04275/OUT) that could access the Gagle Brook Primary School via Cranberry Avenue, equating to a total of almost 4,000 new dwellings within the North West Bicester Masterplan.

7.4 As a number of observed vehicle trips along Charlotte Avenue occurring within the school peak periods can reasonably be attributed to parents currently dropping off/collecting their children from the places of residence outside of the Exemplar Development, i.e. from Caversfield or the wider Bicester area, once the full allocated development at North West Bicester is occupied, thus placing a much higher demand on school places from a more immediate locality, these existing pupils from outside of the Exemplar Development will no longer be expected to be within the catchment of the Gagle Brook Primary School.

7.5 With regards to the above, once the Proposed Development is occupied and generating higher demand for primary school places at the Gagle Brook Primary School, it is considered that those observed traffic flows associated with school children that live outside of the Exemplar Development, will be substantially reduced from Charlotte Avenue resulting in a significant reduction in vehicle trips associated with the school on Charlotte Avenue in the school peak periods.

7.6 With regards to the potential increase in demand for parking at the school in the future, it is acknowledged that the Gagle Brook Primary School is proposed to be increased in size to accommodate at least one additional form of entry. This increase in size will be dependent on a future planning application for the school, which will consider the changes in demand for parking, pick-up, and drop-off, as well as any future safety improvements that might be specifically associated with the increased size of the school and increased number of pupils.

8 Mitigation: Access E

8.1 The Proposed Construction Access to the Eastern Parcel is presented on VTP Drawing 4600-1100-T-011 Rev F [CD-2-17]. This access is proposed to be for a temporary period and to only accommodate construction traffic to the Eastern Parcel. Mr Mason acknowledges in paragraph 9.10 of his PoE that the visibility splay looking right (I think this should be referring to the left) for the temporary Construction Access is substandard when considered in the context of the existing 40mph speed limit.

8.2 As per the OCC response[7] provided in Transport Schedule #2 [CD-5-2], a temporary speed restriction of 30mph would be acceptable to address the visibility constraints for a limited period.

8.3 The alternative permanent means of access from the B4100 to the Eastern Parcel are all considered to be unacceptable, mainly due to the lack of opportunity to permanently reduce the speed limit along the B4100 Banbury Road, which Mr Mason acknowledges in paragraph 9.16 of his PoE in his view would be unacceptable and dangerous.

8.4 The BBUG Proof of Evidence suggests in paragraph 3.2 that the Appellant's transport

[7] OCC – Transport Schedule #2, page 3, bullet point 11 [CD-5-2]

consultant deems an alternative means of permanent access from the B4100 to the Eastern Parcel as being viable.

8.5 I do not accept this and have identified within my Proof of Evidence in Table 7-1 that of the three potential options considered, none of these would be considered suitable (or viable) to provide a permanent means of access to the Eastern Parcel.

ATTACHMENT A

OCC EMAIL CORRESPONDENCE (03/05/2023)

Mark Kirby

From: White, Joy - Oxfordshire County Council <Joy.White@Oxfordshire.gov.uk>
Sent: 03 May 2023 10:29
To: Thomas Webster; Hannah Leary; Mark Kirby
Cc: Oliver, Richard - Oxfordshire County Council; Manku, Amrik - Oxfordshire County Council; Coats, Judith - Oxfordshire County Council
Subject: Without Prejudice: NW Bicester 21/01630/OUT - Revised transport contributions and further information.

Good morning,

Further to last week's meeting, I have made the following changes to our transport S106 requirements.

Strategic Highway Contribution : Reduced to £3,023,302 Q4 2021. Revised R122 calculation, with additional information, below:

Phase 2 of the project (see Phasing drawing attached at Appendix B) was estimated in August 2021 during early preliminary design stages, at £30.2 million to complete design and construction. (Note that Phase 1 of the project was the underbridges constructed under the railway.). Please see below estimate which is based on the Aug 21 with inflation added. Net of inflation the estimate totals £30,226,067

A4095 Realignment Updated EFC 28/04/23

Item	Section	Sub-section	Sub-section Total	Section Total
1	**Actual costs incurred**		1,378,000	**1,378,000**
2	**Forecast for Design Stage**	Principal Designer	1,530,000	
		Other consultants	966,000	
		OCC Internal costs	720,000	
		Statutory Undertakers	270,000	
		Risk/OB @ 20%	697,200	**4,183,200**
3	**Forecast for Construction Stage**	OCC Internal costs	1,200,000	
		Main Contractor	18,155,722	
		Design support during construction	240,000	
		Other consultants	250,000	
		Statutory Undertakers	500,000	
		Land Acquisition		
		Risk/OB @ 20%	4,169,144	
		Inflation	6,897,042	**31,411,909**
4	**Close Out**		150,000	**150,000**
	Total Forecast		***37,123,109***	***37,123,109***

Note;
The above construction cost estimate has been based upon very early preliminary design information

OCC have included for Inflation based upon latest BCIS TPI indices to uplift the estimate produced in Aug 21 assuming construction start Aug 25

Note that this does not allow for any treatment of existing Howes Lane or Bucknell Road or connection to Bucknell Road (Note that Bucknell Road would be severed by the A4095 and changed into an active travel route between Lords Lane and a point to the north of the A4095 where a road within the development to the north of the railway would connect it into the A4095). The contribution has been calculated on the basis of a proportionate share (530 dwellings out of a total of 6000 at North West Bicester) of a total cost of £30,226,067 plus £4,000,000 for the underbridges under the railway. Calculation:

(£30,226,067 + £4,000,000) x 530/6000 = £3,023,302 (Q4 2021)

Bus service contribution (described as 'Transport Contribution' on the appellant's document) – confirmed at £752,412 (Feb 2022)

Additional information to justify the amount:

(a) Necessary to make the development acceptable in planning terms
Access to public transport services is a requirement of Local Plan Policy Bicester 1, the NW Bicester SPD, and the Oxfordshire LTCP Policy 5e.

A financial contribution towards public transport services is required to ensure a credible and attractive bus service exists to provide access to the development to enable:

- private car journeys to be minimised to an acceptable level; and
- those without access to a car to be able to reach local services.

The current bus service E1 through the adjacent, existing Elmsbrook development will cease in April 2023 as a result of the expiry of developer funding, and the Council has secured an alternative service which will operate hourly on Mondays to Saturdays until March 2025. The proposed contribution will secure either an improved service to Elmsbrook or continued operation of the post-April arrangements, whichever is appropriate at the time of occupation.

Ultimately the public transport strategy for the Eco-Town is to provide two new dedicated bus services, one north and one south of the railway, at a daytime frequency of up to every 10 minutes, linking the site with Bicester town centre and Bicester Village Railway Station. An effective 'turn up and go' bus service is required in order to offer residents and visitors associated with the development a viable alternative to the private car, to promote travel by public transport, and to achieve the low car modal share required to mitigate the traffic impact of the site. The transport assessment is based on this provision.

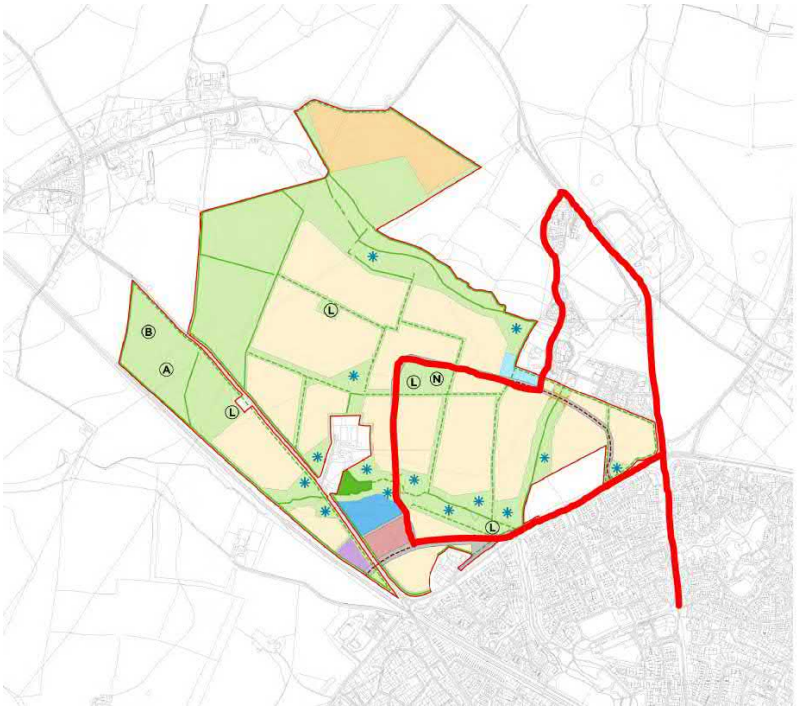
Furthermore, the Council has a strategy of ensuring that residents of new residential developments have access to a credible level of public transport, to provide a choice of mode of travel and make the site acceptable in planning terms.

(b) Directly related to the development
Financial contributions are always used to maintain or improve bus services operating in the vicinity of the site so that they are directly related to the development. The bus service will loop through the Eco-Town north of the railway, serving stops within easy walking distance of the site, on the Elmsbrook spine road.

(c) Fairly and reasonably related in scale and kind to the development
To provide a ten-minute frequency bus service, four buses are required. This has been assessed on the basis of the journey time. The journey time for a round trip between Bicester

Village Station, Bicester town centre, the NW Bicester development and return has been assessed at 33 minutes.

This uses journey times of existing services between the town centre and Banbury Road Roundabout, and then a calculated journey time of 13 minutes around a one-way loop (below) which is 4.2km in length at an average speed of 20kph.



On this basis a 10-minute frequency service to the NW Bicester development as a whole will require four vehicles. In the evenings and on Sundays, when a service of at least every 30 minutes will be in operation, two vehicles would be required.

Bus industry costs have increased significantly in recent years and especially since the pandemic, driven by rising labour, fuel and materials costs. The bus costs indicated in original work done for the NW Bicester masterplan are therefore significantly out of date.

The Confederation of Passenger Transport (CPT) is the bus and coach industry representative body. It published a Cost Index every year up to 2019 and is used by the council to apply inflationary increases to its bus contracts.

Applying this index from the time of the masterplan (2014) and indicative cost estimates to today results in a per bus annual cost of £192,560. As revenue builds throughout an 8-year period the subsidy requirement declines on a straight-line basis, resulting in the total cost of £866,520.

This is considered to be a reasonable cost assumption in the wider context of bus operations in Bicester – two recent tender exercises by the council for bus services in Bicester operating on Monday to Saturday daytimes have yielded prices of £199,980 and £261,000 respectively, even when revenue is retained by the operator.

Provision of services in the evenings and on Sundays at a lower frequency costs £25,000 per bus per year, resulting in a total contribution of £112,500 per bus over the 8-year period.

Bus costs

Year	Daytime Cost	Daytime Revenue	Daytime Subsidy
1	£192,560	£0	£192,560
2	£192,560	£24,070	£168,490
3	£192,560	£48,140	£144,420
4	£192,560	£72,210	£120,350
5	£192,560	£96,280	£96,280
6	£192,560	£120,350	£72,210
7	£192,560	£144,420	£48,140
8	£192,560	£168,490	£24,070
9	£192,560	£192,560	£0
Total		**£866,520**	**£866,520**

Eve/Sun Cost	Eve/Sun Revenue	Eve/Sun Subsidy
£25,000	£0	£25,000
£25,000	£3,125	£21,875
£25,000	£6,250	£18,750
£25,000	£9,375	£15,625
£25,000	£12,500	£12,500
£25,000	£15,625	£9,375
£25,000	£18,750	£6,250
£25,000	£21,875	£3,125
£25,000	£25,000	£0
	£112,500	**£112,500**

The total cost of the bus service provision for NW Bicester is therefore:

- £866,520 x 4 = £3,466,080
- £112,500 x 2 = £225,000
- Total: £3,691,080

As the Firethorn development consists of 530 dwellings from a total allocation of 2,600 the contribution is pro-rata and therefore £752,412 (at February 2022 prices).

Network Rail Shared Value payment In order to meet the terms of our legal agreement with Network Rail, we propose that this is left in the draft S106 and it will be for the Inspector to strike out if they consider it not to be justified in the context of viability.

Highway Works Contribution 2 – Banbury Road junction
I await senior level sign off on this one.

We are working on justifications for the education contributions and will come back to you with an updated R122 statement as soon as possible.

Kind regards

Joy

Joy White
Principal Transport Planner
Transport Development Control: Cherwell, West Oxfordshire and Oxford City
Oxfordshire County Council
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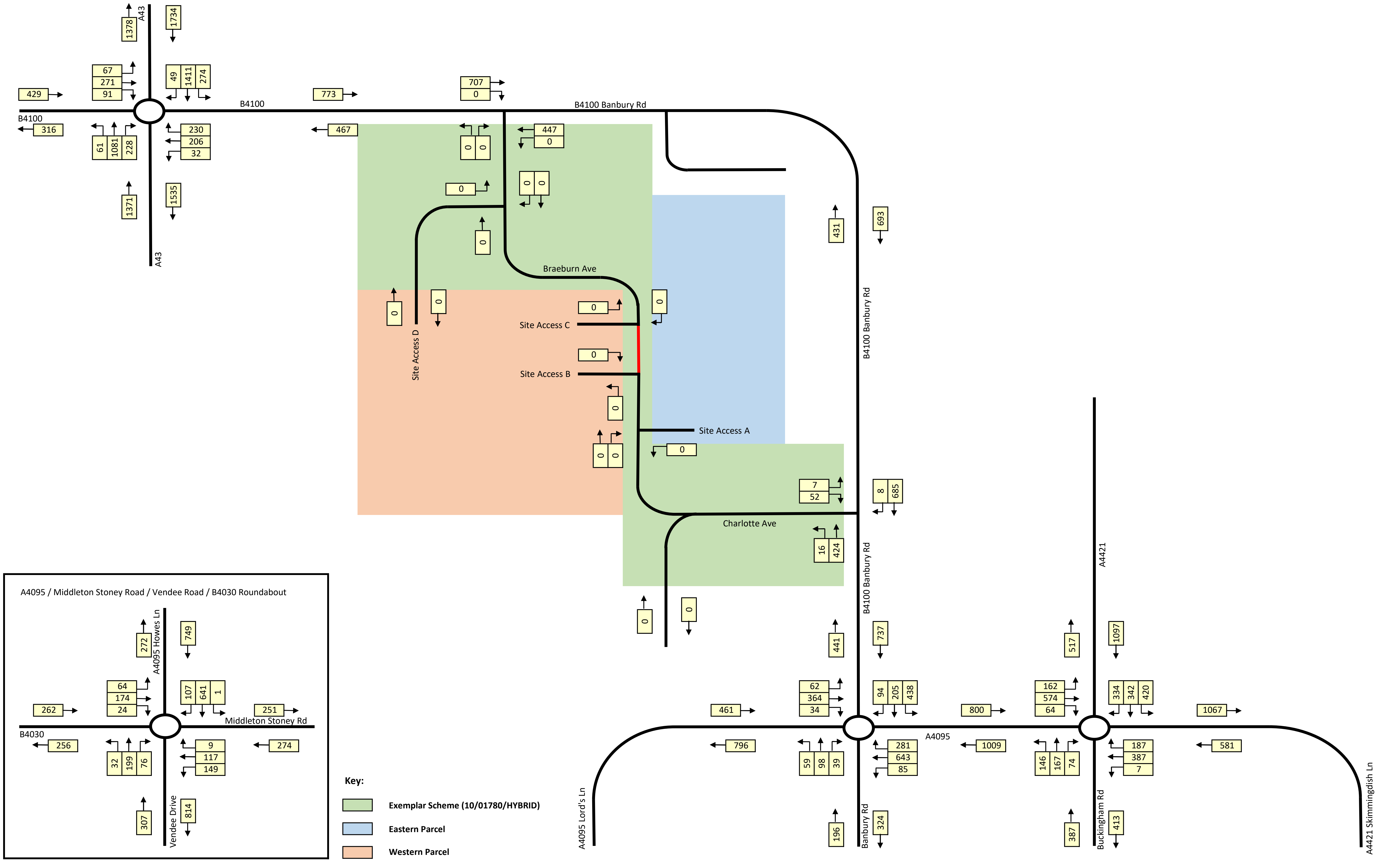
(Internal – call me on Teams)
Mobile 07554 103522

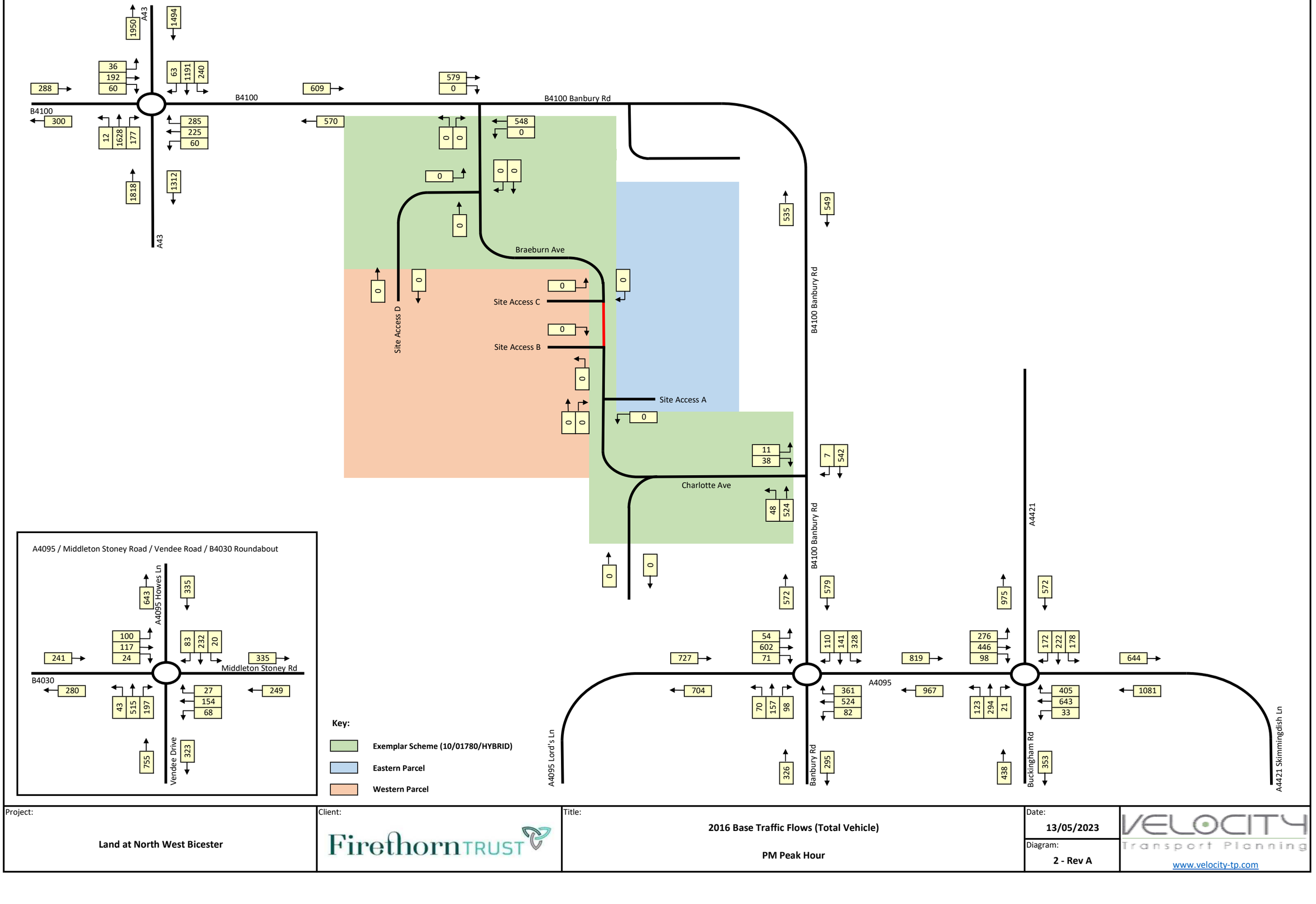
ATTACHMENT B

UPDATED TRAFFIC FLOW DIAGRAMS

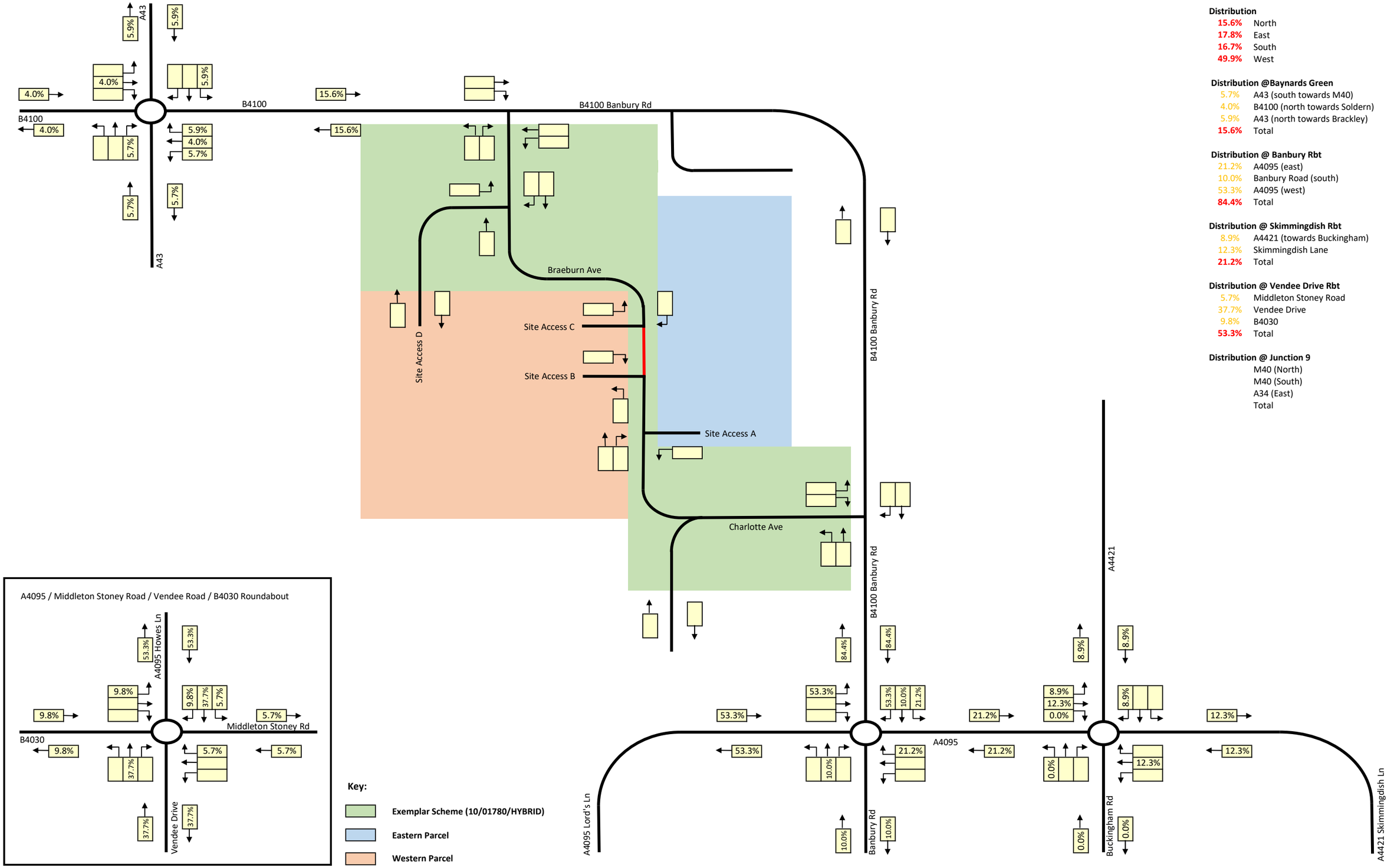


Project:	Client:	Title:	Date:
Land at North West Bicester	Firethorn TRUST	2016 Base Traffic Flows (Total Vehicle) AM Peak Hour	13/05/2023 Diagram: 1 - Rev A

VELOCITY Transport Planning
www.velocity-tp.com



Project: **Land at North West Bicester**	Client: Firethorn TRUST	Title: **2016 Base Traffic Flows (Total Vehicle)** **PM Peak Hour**	Date: **13/05/2023** Diagram: **2 - Rev A**	VELOCITY Transport Planning www.velocity-tp.com



Distribution

15.6%	North
17.8%	East
16.7%	South
49.9%	West

Distribution @Baynards Green

5.7%	A43 (south towards M40)
4.0%	B4100 (north towards Soldern)
5.9%	A43 (north towards Brackley)
15.6%	Total

Distribution @ Banbury Rbt

21.2%	A4095 (east)
10.0%	Banbury Road (south)
53.3%	A4095 (west)
84.4%	Total

Distribution @ Skimmingdish Rbt

8.9%	A4421 (towards Buckingham)
12.3%	Skimmingdish Lane
21.2%	Total

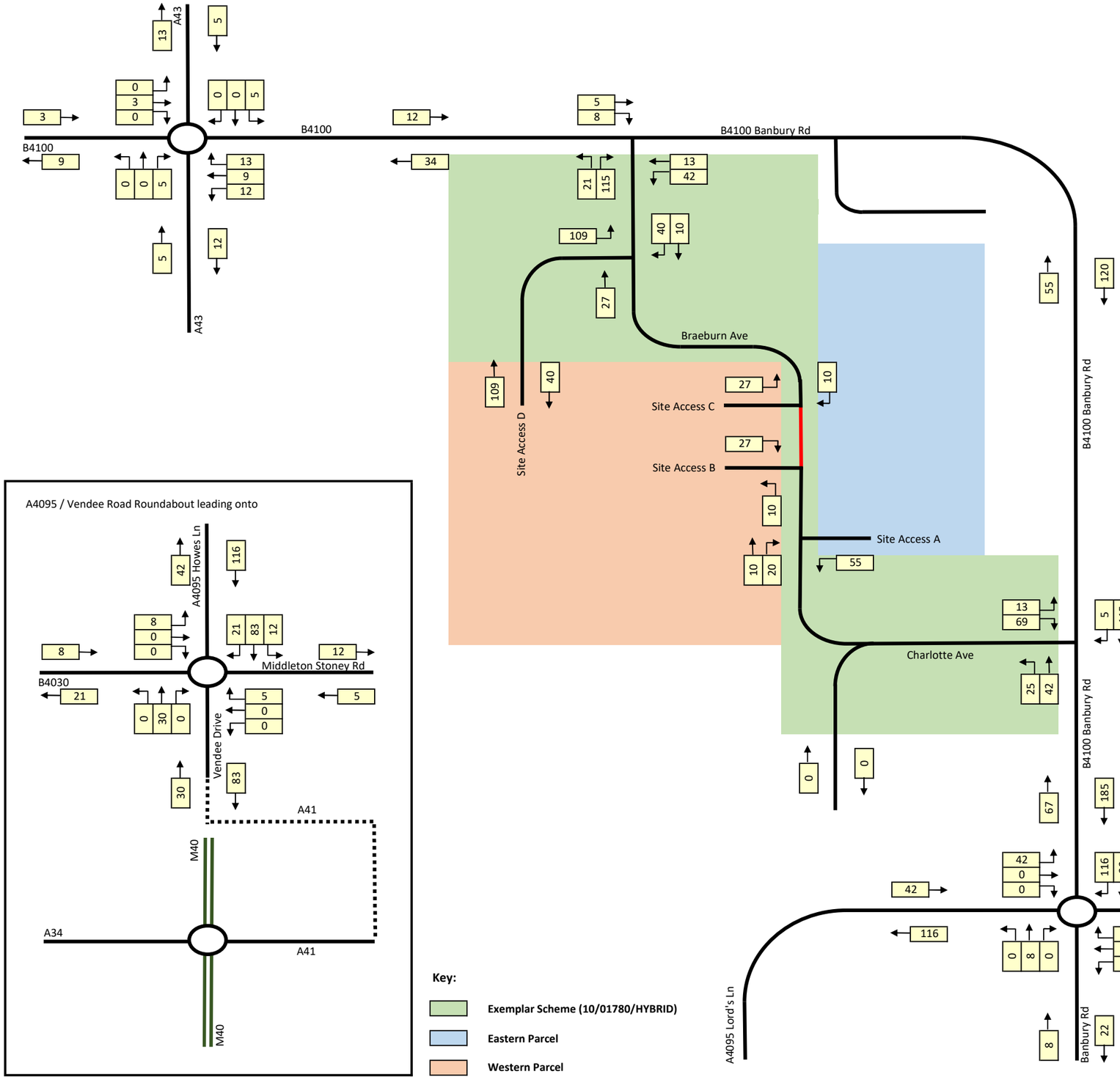
Distribution @ Vendee Drive Rbt

5.7%	Middleton Stoney Road
37.7%	Vendee Drive
9.8%	B4030
53.3%	Total

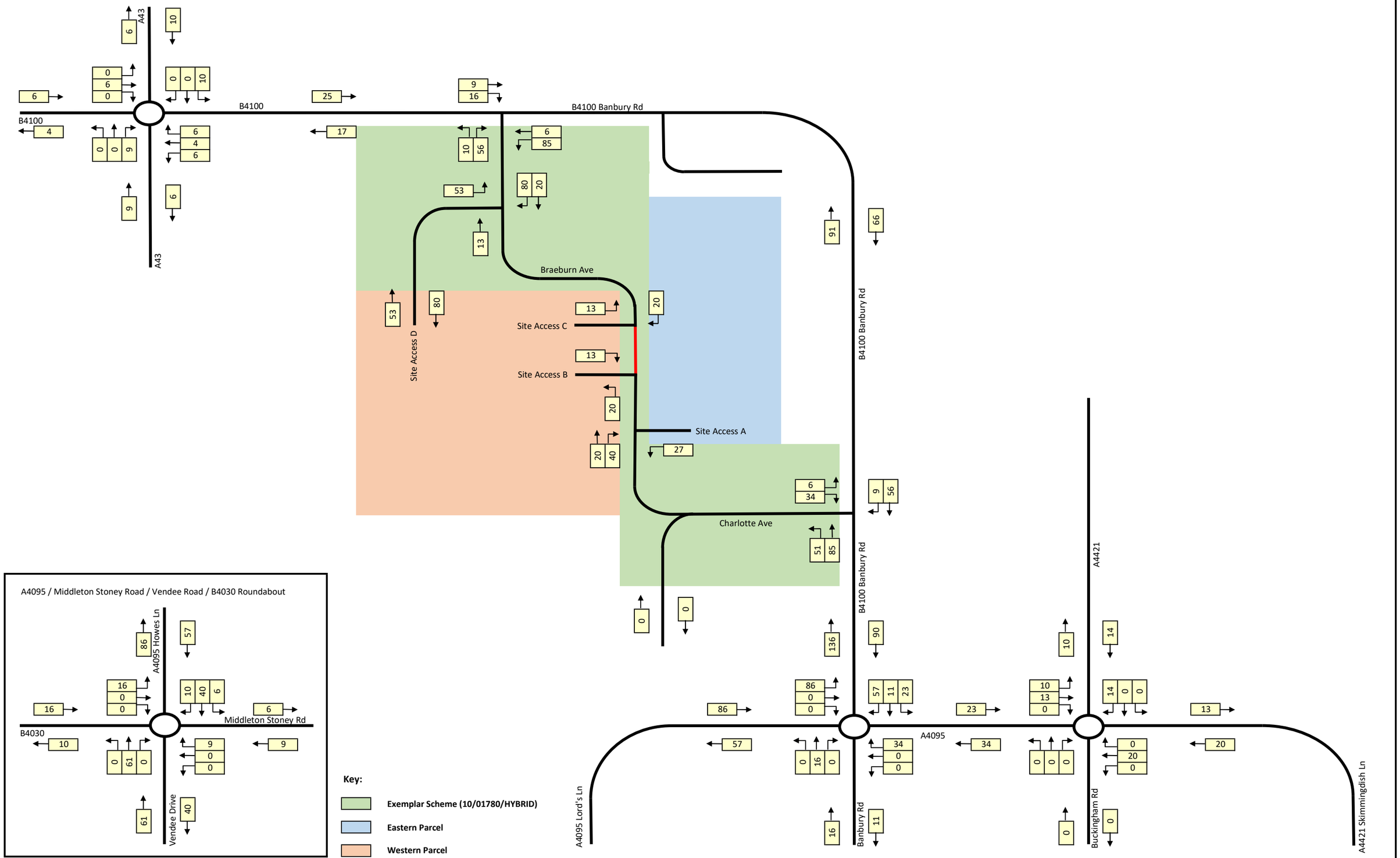
Distribution @ Junction 9

	M40 (North)
	M40 (South)
	A34 (East)
	Total

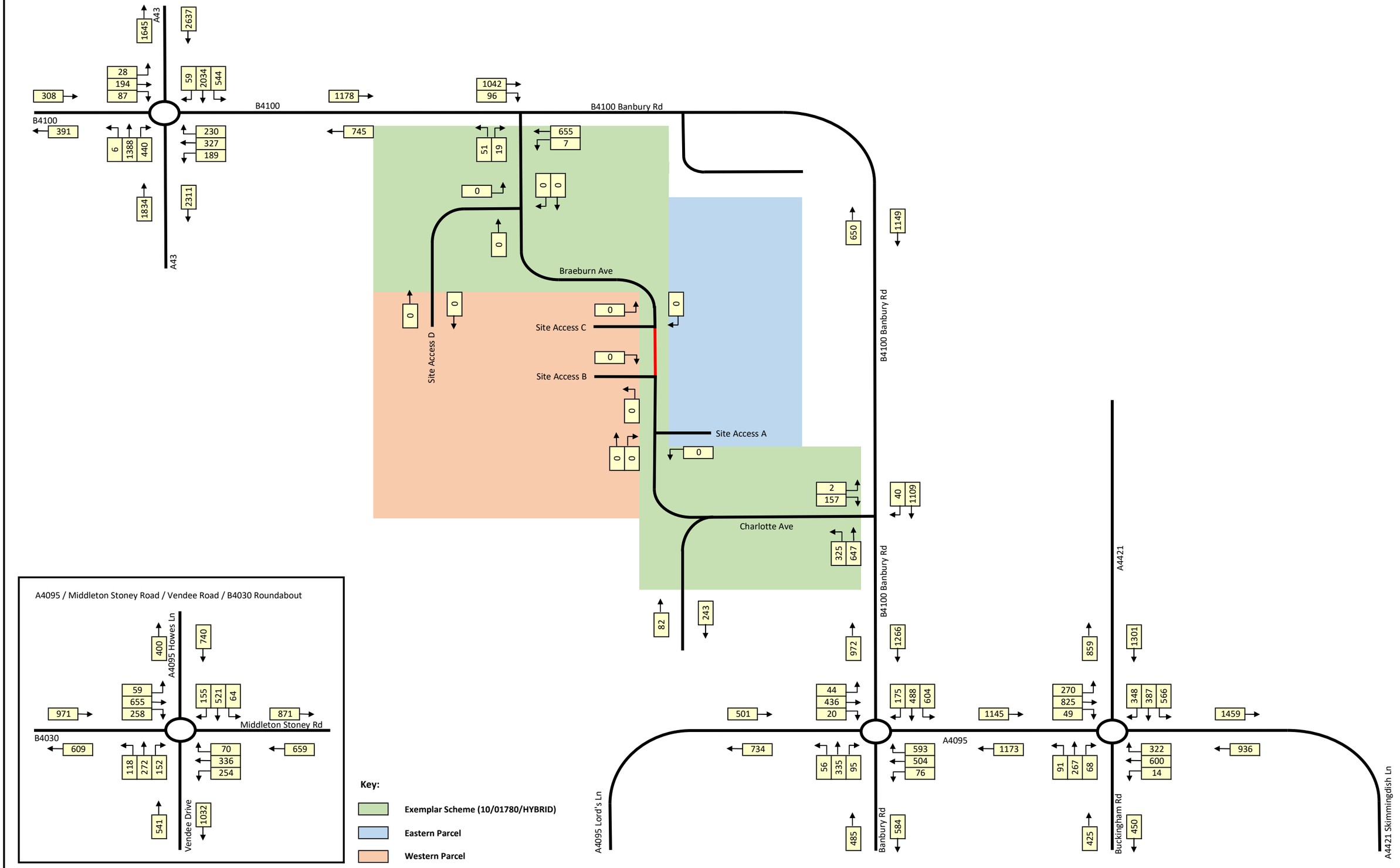
Project: **Land at North West Bicester**	Client: Firethorn TRUST	Title: **Agreed Distribution Profile**	Date: **13/05/2023** Diagram: **3 - Rev A**	VELOCITY Transport Planning www.velocity-tp.com



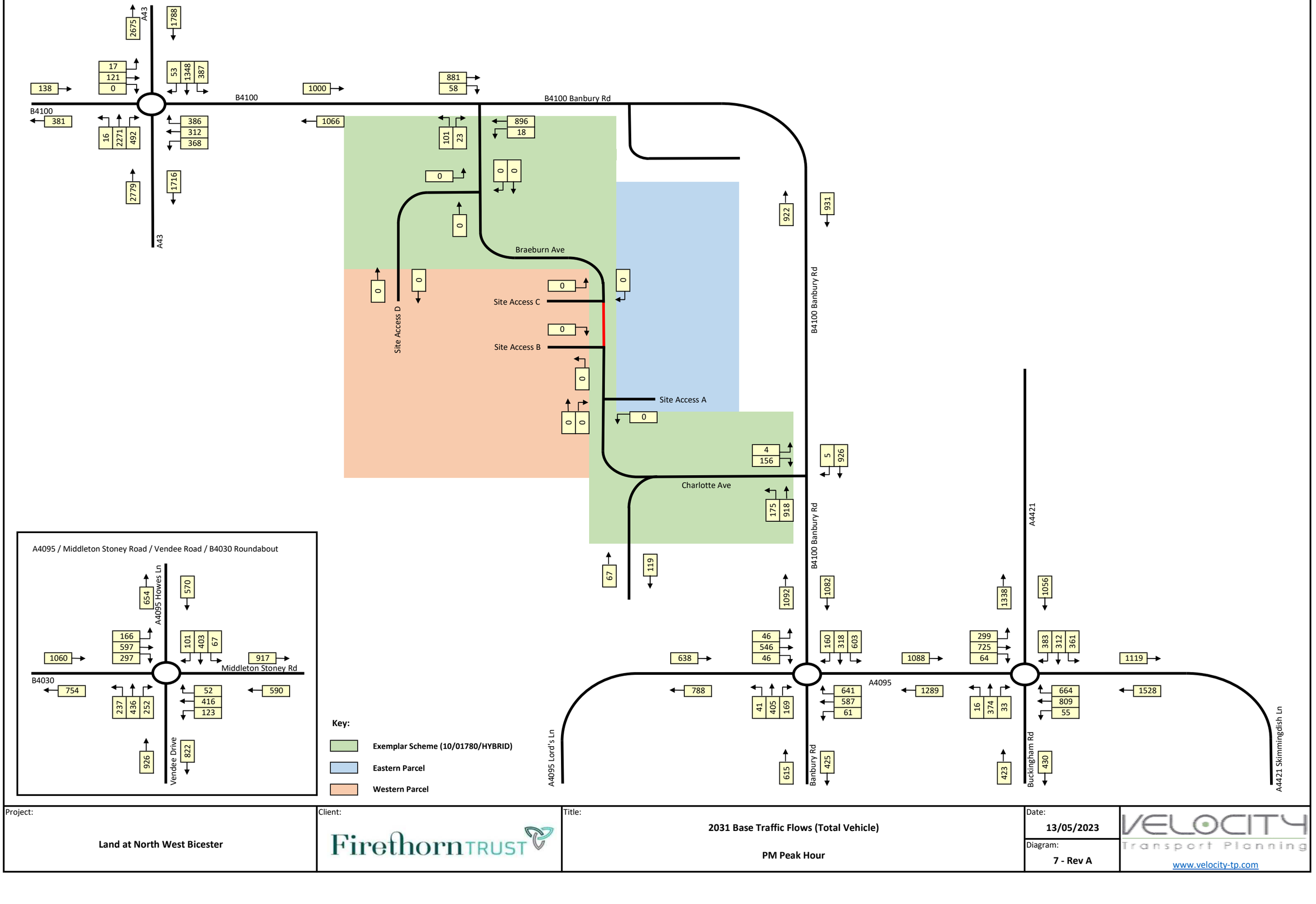
Project:	Client:	Title:	Date:	
Land at North West Bicester	Firethorn TRUST	Proposed Development Traffic Flows (Total Vehicles) AM Peak Hour	13/05/2023	VELOCITY Transport Planning
			Diagram: 4 - Rev A	www.velocity-tp.com



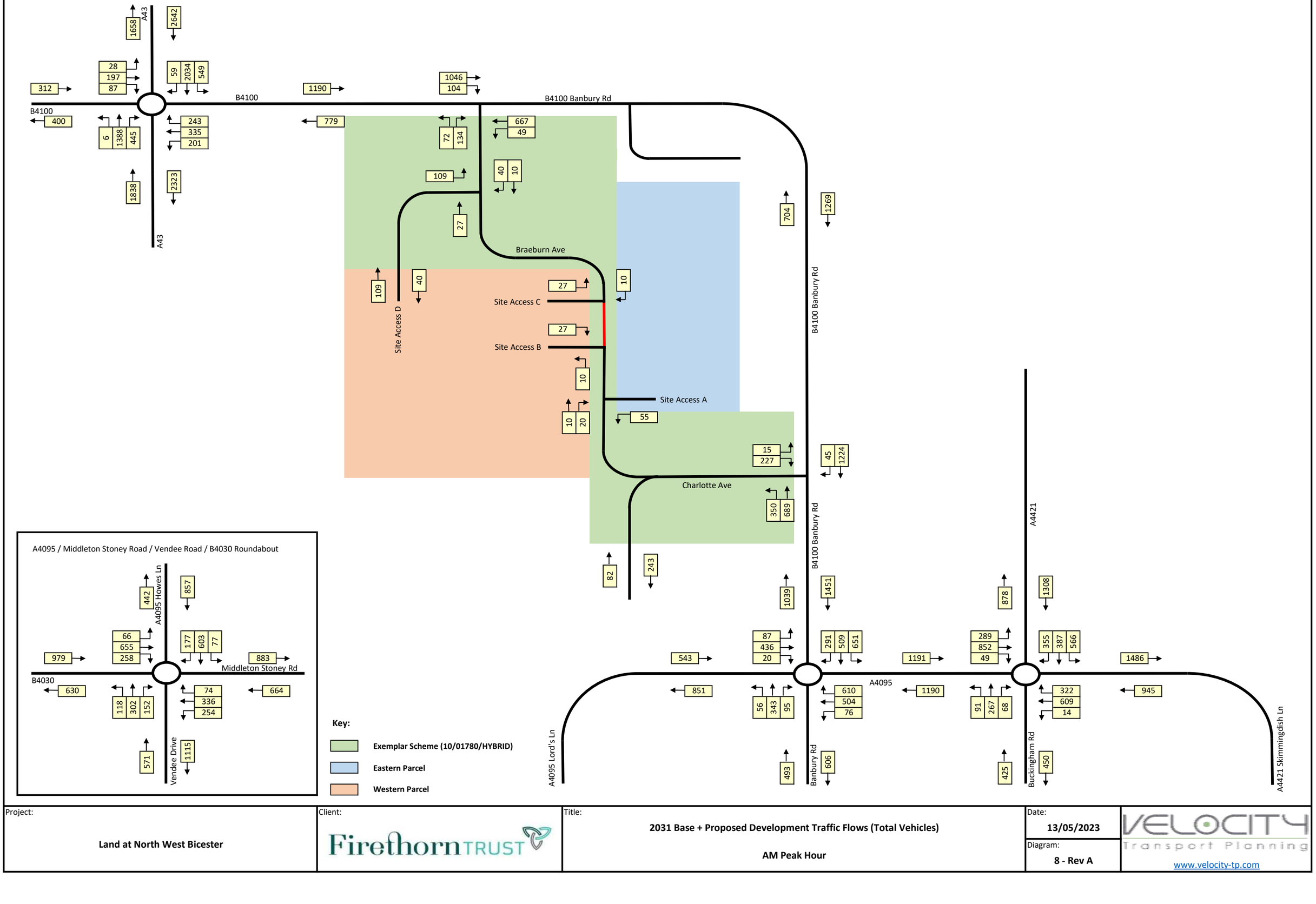
Project: **Land at North West Bicester**	Client: Firethorn TRUST	Title: **Proposed Development Traffic Flows (Total Vehicles)** **PM Peak Hour**	Date: **13/05/2023** Diagram: **5 - Rev A**	VELOCITY Transport Planning www.velocity-tp.com



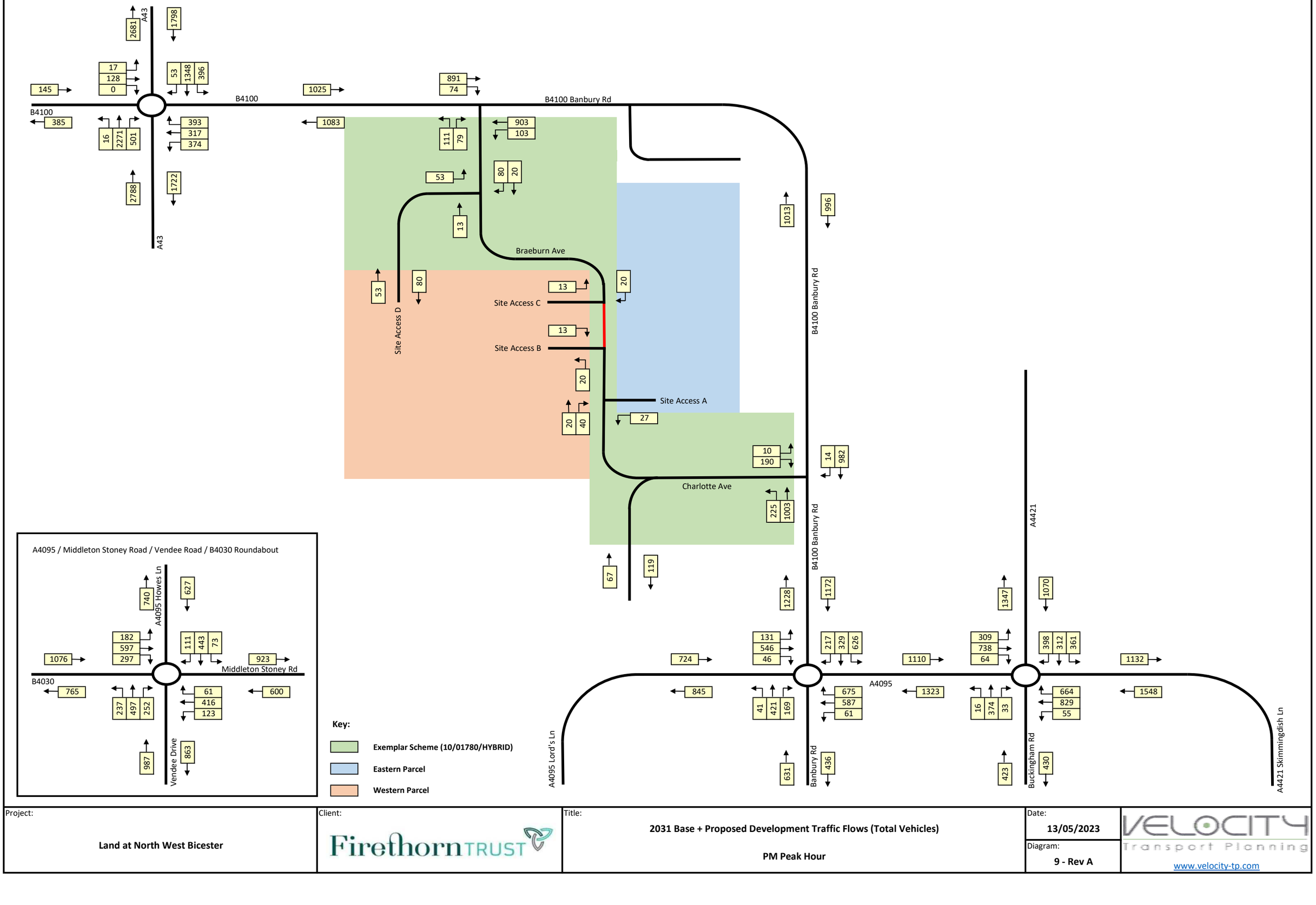
Project: **Land at North West Bicester**	Client: Firethorn TRUST	Title: **2031 Base Traffic Flows (Total Vehicle)** **AM Peak Hour**	Date: **13/05/2023** Diagram: **6 - Rev A**	VELOCITY Transport Planning www.velocity-tp.com



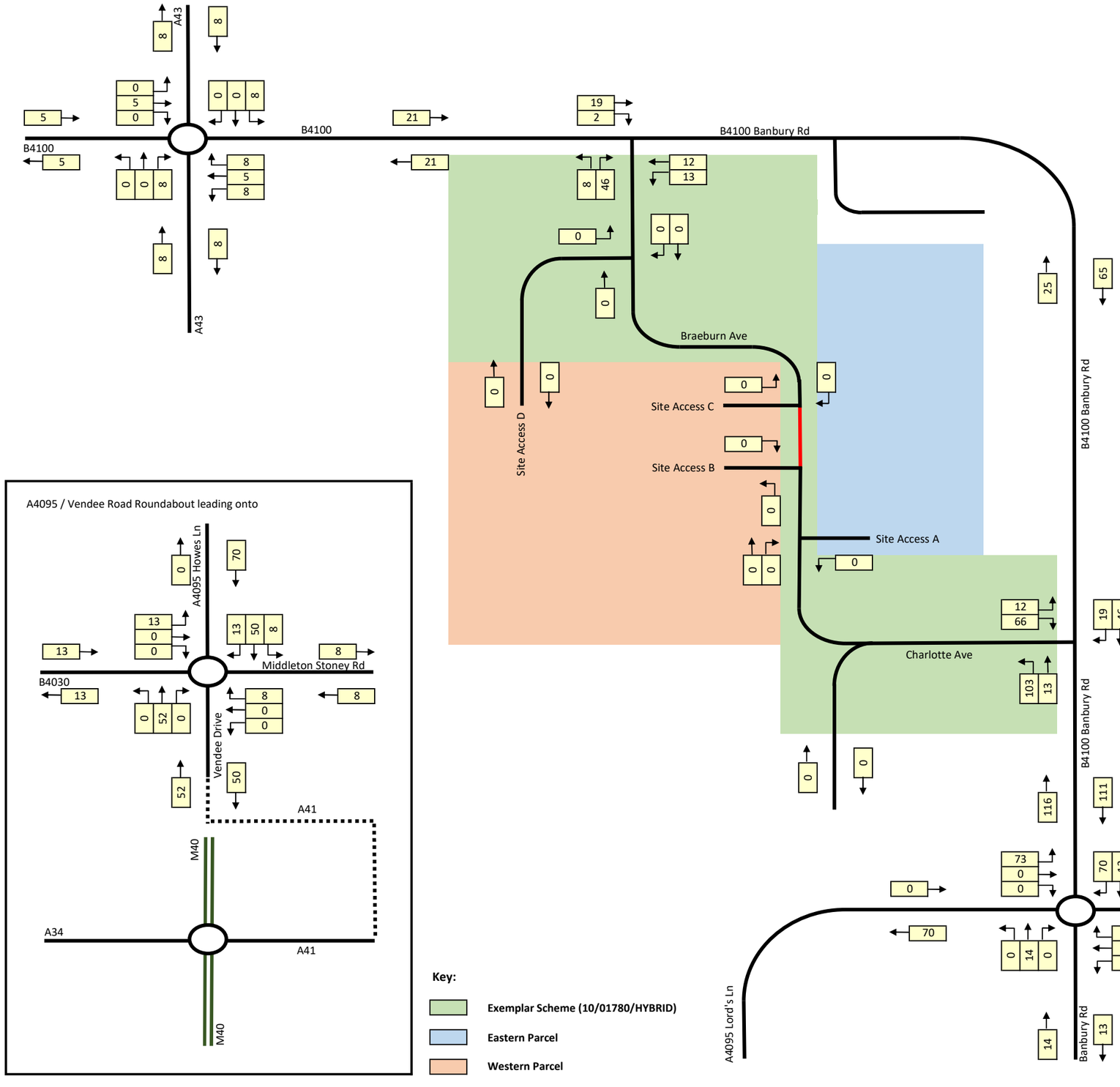
Project: **Land at North West Bicester**	Client: Firethorn TRUST	Title: **2031 Base Traffic Flows (Total Vehicle)** **PM Peak Hour**	Date: **13/05/2023** Diagram: **7 - Rev A**	VELOCITY Transport Planning www.velocity-tp.com



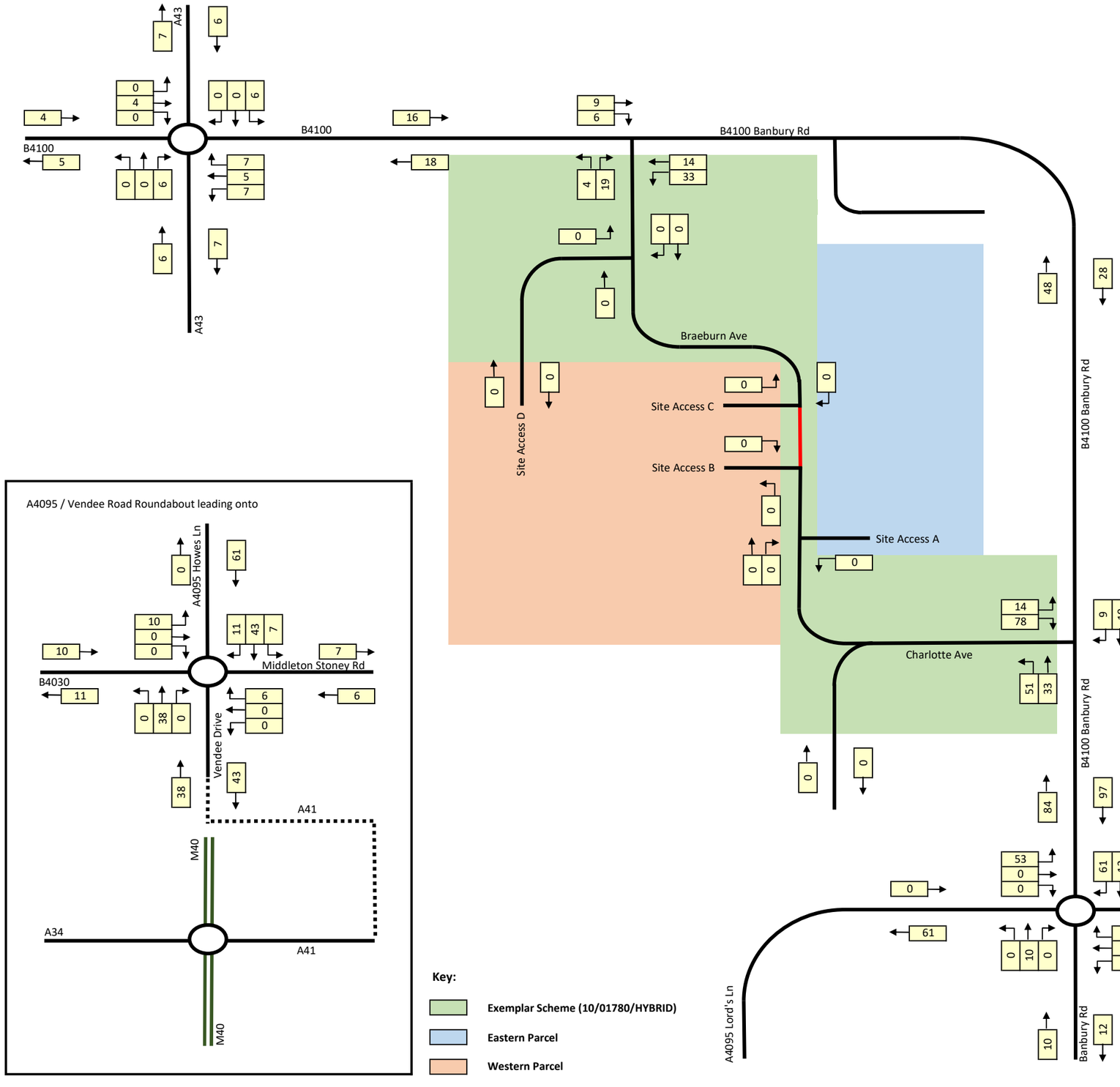
Project: **Land at North West Bicester**	Client: Firethorn TRUST	Title: **2031 Base + Proposed Development Traffic Flows (Total Vehicles)** **AM Peak Hour**	Date: **13/05/2023** Diagram: **8 - Rev A**	VELOCITY Transport Planning www.velocity-tp.com



Project: **Land at North West Bicester**	Client: Firethorn TRUST	Title: **2031 Base + Proposed Development Traffic Flows (Total Vehicles)** **PM Peak Hour**	Date: **13/05/2023** Diagram: **9 - Rev A**	VELOCITY Transport Planning www.velocity-tp.com



Project:	Client:	Title:	Date:	
Land at North West Bicester	Firethorn TRUST	Permitted Exemplar Development Traffic Flows (Total Vehicles) AM Peak Hour	13/05/2023	VELOCITY Transport Planning
			Diagram: Exemplar - A	www.velocity-tp.com



Project: **Land at North West Bicester**	Client: Firethorn TRUST	Title: **Permitted Exemplar Development Traffic Flows (Total Vehicles)** **PM Peak Hour**	Date: **13/05/2023** Diagram: **Exemplar B**	VELOCITY Transport Planning www.velocity-tp.com

ATTACHMENT C

BRAEBURN AVENUE AND CHARLOTTE AVENUE
PICADY RESULTS OF THE EXISTING PRIORITY JUNCTIONS

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: NW Bicester - Charlotte Avenue Site Access Junction.j9
Path: C:\Users\Cecilia\OneDrive
Report generation date: 18/03/2021 21:13:15

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2031 DM							
Stream B-C	0.0	8.73	0.01	A	0.0	9.79	0.01	A
Stream B-A	1.1	23.08	0.53	C	1.2	24.37	0.54	C
Stream C-AB	0.1	7.22	0.08	A	0.0	7.11	0.01	A
	2031 DS							
Stream B-C	0.1	32.77	0.13	D	0.1	16.94	0.05	C
Stream B-A	5.2	79.67	0.87	F	3.1	56.10	0.77	F
Stream C-AB	0.1	7.61	0.09	A	0.0	7.89	0.03	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	11/02/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VTP\Cecilia
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031 DM	AM	ONE HOUR	07:45	09:15	15
D2	2031 DM	PM	ONE HOUR	16:45	18:15	15
D3	2031 DS	AM	ONE HOUR	07:45	09:15	15
D4	2031 DS	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2031 DM, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	1.74	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	B4100 South		Major
B	Charlotte Avenue		Minor
C	B4100 North		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.80	✓	4.02	✓	4.14	208.0	✓	11.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	9.72	6.29	4.70	4.45	✓	3.00	250	217

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	873	0.122	0.308	0.194	0.440
1	B-C	701	0.090	0.227	-	-
1	C-B	841	0.272	0.272	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031 DM	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	997	100.000
B		✓	165	100.000
C		✓	1170	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	325	672
	B	163	0	2
	C	1130	40	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	4	0	0
	C	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	8.73	0.0	A
B-A	0.53	23.08	1.1	C
C-AB	0.08	7.22	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	2	530	0.003	1	0.0	6.807	A
B-A	123	510	0.241	121	0.3	9.614	A
C-AB	30	637	0.047	30	0.0	5.930	A
C-A	851			851			
A-B	245			245			
A-C	506			506			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	2	491	0.004	2	0.0	7.362	A
B-A	147	439	0.334	146	0.5	12.738	B
C-AB	36	597	0.060	36	0.1	6.412	A
C-A	1016			1016			
A-B	292			292			
A-C	604			604			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	2	416	0.005	2	0.0	8.689	A
B-A	179	341	0.526	177	1.1	22.488	C
C-AB	44	542	0.081	44	0.1	7.221	A
C-A	1244			1244			
A-B	358			358			
A-C	740			740			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	2	414	0.005	2	0.0	8.732	A
B-A	179	341	0.526	179	1.1	23.079	C
C-AB	44	542	0.081	44	0.1	7.221	A
C-A	1244			1244			
A-B	358			358			
A-C	740			740			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	2	489	0.004	2	0.0	7.383	A
B-A	147	439	0.334	149	0.5	13.014	B
C-AB	36	597	0.060	36	0.1	6.417	A
C-A	1016			1016			
A-B	292			292			
A-C	604			604			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	2	530	0.003	2	0.0	6.818	A
B-A	123	509	0.241	124	0.3	9.721	A
C-AB	30	637	0.047	30	0.0	5.933	A
C-A	851			851			
A-B	245			245			
A-C	506			506			

2031 DM, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	1.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031 DM	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1099	100.000
B		✓	166	100.000
C		✓	953	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	175	924
	B	162	0	4
	C	948	5	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	4	0	0
	C	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	9.79	0.0	A
B-A	0.54	24.37	1.2	C
C-AB	0.01	7.11	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	3	500	0.006	3	0.0	7.238	A
B-A	122	502	0.243	121	0.3	9.763	A
C-AB	4	616	0.006	4	0.0	5.879	A
C-A	714			714			
A-B	132			132			
A-C	696			696			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	455	0.008	4	0.0	7.969	A
B-A	146	430	0.338	145	0.5	13.051	B
C-AB	4	572	0.008	4	0.0	6.339	A
C-A	852			852			
A-B	157			157			
A-C	831			831			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	374	0.012	4	0.0	9.737	A
B-A	178	331	0.538	176	1.1	23.674	C
C-AB	6	512	0.011	5	0.0	7.107	A
C-A	1044			1044			
A-B	193			193			
A-C	1017			1017			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	372	0.012	4	0.0	9.794	A
B-A	178	331	0.538	178	1.2	24.366	C
C-AB	6	512	0.011	6	0.0	7.107	A
C-A	1044			1044			
A-B	193			193			
A-C	1017			1017			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	454	0.008	4	0.0	7.994	A
B-A	146	430	0.338	148	0.5	13.354	B
C-AB	4	572	0.008	5	0.0	6.339	A
C-A	852			852			
A-B	157			157			
A-C	831			831			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	3	500	0.006	3	0.0	7.248	A
B-A	122	502	0.243	123	0.3	9.871	A
C-AB	4	616	0.006	4	0.0	5.881	A
C-A	714			714			
A-B	132			132			
A-C	696			696			

2031 DS, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	7.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031 DS	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1064	100.000
B		✓	248	100.000
C		✓	1290	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	350	714
	B	233	0	15
	C	1245	45	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	3	0	0
	C	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.13	32.77	0.1	D
B-A	0.87	79.67	5.2	F
C-AB	0.09	7.61	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	11	506	0.022	11	0.0	7.273	A
B-A	175	476	0.369	173	0.6	12.121	B
C-AB	34	623	0.054	34	0.1	6.107	A
C-A	937			937			
A-B	263			263			
A-C	538			538			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	13	444	0.030	13	0.0	8.366	A
B-A	209	400	0.524	207	1.1	19.032	C
C-AB	40	581	0.070	40	0.1	6.660	A
C-A	1119			1119			
A-B	315			315			
A-C	642			642			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	17	185	0.089	16	0.1	21.305	C
B-A	257	295	0.871	243	4.5	60.686	F
C-AB	50	522	0.095	49	0.1	7.609	A
C-A	1371			1371			
A-B	385			385			
A-C	786			786			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	17	126	0.131	16	0.1	32.771	D
B-A	257	295	0.871	253	5.2	79.666	F
C-AB	50	522	0.095	50	0.1	7.612	A
C-A	1371			1371			
A-B	385			385			
A-C	786			786			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	13	428	0.032	14	0.0	8.701	A
B-A	209	400	0.524	226	1.2	23.007	C
C-AB	40	581	0.070	41	0.1	6.666	A
C-A	1119			1119			
A-B	315			315			
A-C	642			642			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	11	504	0.022	11	0.0	7.306	A
B-A	175	475	0.369	178	0.6	12.494	B
C-AB	34	623	0.054	34	0.1	6.112	A
C-A	937			937			
A-B	263			263			
A-C	538			538			

2031 DS, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	4.59	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2031 DS	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1234	100.000
B		✓	206	100.000
C		✓	1018	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	225	1009
	B	196	0	10
	C	1004	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	3	0	0
	C	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.05	16.94	0.1	C
B-A	0.77	56.10	3.1	F
C-AB	0.03	7.89	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	8	475	0.016	7	0.0	7.697	A
B-A	148	465	0.317	146	0.5	11.570	B
C-AB	11	588	0.018	10	0.0	6.229	A
C-A	756			756			
A-B	169			169			
A-C	760			760			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	9	417	0.022	9	0.0	8.819	A
B-A	176	387	0.456	175	0.8	17.408	C
C-AB	13	539	0.023	13	0.0	6.833	A
C-A	903			903			
A-B	202			202			
A-C	907			907			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	11	246	0.045	11	0.0	15.338	C
B-A	216	278	0.775	208	2.9	47.992	E
C-AB	15	471	0.033	15	0.0	7.893	A
C-A	1105			1105			
A-B	248			248			
A-C	1111			1111			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	11	223	0.049	11	0.1	16.942	C
B-A	216	278	0.775	215	3.1	56.101	F
C-AB	15	471	0.033	15	0.0	7.893	A
C-A	1105			1105			
A-B	248			248			
A-C	1111			1111			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	9	411	0.022	9	0.0	8.962	A
B-A	176	387	0.456	185	0.9	19.182	C
C-AB	13	539	0.023	13	0.0	6.837	A
C-A	903			903			
A-B	202			202			
A-C	907			907			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	8	474	0.016	8	0.0	7.720	A
B-A	148	465	0.317	149	0.5	11.822	B
C-AB	11	588	0.018	11	0.0	6.232	A
C-A	756			756			
A-B	169			169			
A-C	760			760			

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: NW Bicester - Braeburn Avenue Site Access Junction.j9
Path: C:\Users\Cecilia\OneDrive
Report generation date: 18/03/2021 21:12:33

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2031 DM							
Stream B-C	0.1	6.63	0.09	A	0.3	8.30	0.20	A
Stream B-A	0.1	14.52	0.08	B	0.1	16.45	0.10	C
Stream C-AB	0.2	6.66	0.16	A	0.1	7.03	0.11	A
	2031 DS							
Stream B-C	0.2	9.98	0.18	A	0.4	10.68	0.27	B
Stream B-A	0.9	22.78	0.48	C	0.5	21.98	0.35	C
Stream C-AB	0.2	6.99	0.18	A	0.2	7.71	0.15	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	18/03/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VTP\Cecilia
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031 DM	AM	ONE HOUR	07:45	09:15	15
D2	2031 DM	PM	ONE HOUR	16:45	18:15	15
D3	2031 DS	AM	ONE HOUR	07:45	09:15	15
D4	2031 DS	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2031 DM, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Braeburn Avenue	T-Junction	Two-way	0.65	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	10.00	✓	4.11	✓	3.90	250.0	✓	9.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	7.06	5.23	5.10	5.10	✓	3.00	200	145

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	626	0.086	0.218	0.137	0.311
1	B-C	805	0.102	0.258	-	-
1	C-B	852	0.273	0.273	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031 DM	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	686	100.000
B		✓	70	100.000
C		✓	1159	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	7	679
	B	19	0	51
	C	1063	96	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.09	6.63	0.1	A
B-A	0.08	14.52	0.1	B
C-AB	0.16	6.66	0.2	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	38	666	0.058	38	0.1	5.733	A
B-A	14	382	0.037	14	0.0	9.787	A
C-AB	72	711	0.102	72	0.1	5.629	A
C-A	800			800			
A-B	5			5			
A-C	511			511			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	46	638	0.072	46	0.1	6.075	A
B-A	17	334	0.051	17	0.1	11.344	B
C-AB	86	684	0.126	86	0.1	6.023	A
C-A	956			956			
A-B	6			6			
A-C	610			610			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	56	599	0.094	56	0.1	6.629	A
B-A	21	269	0.078	21	0.1	14.511	B
C-AB	106	646	0.164	105	0.2	6.661	A
C-A	1170			1170			
A-B	8			8			
A-C	748			748			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	56	599	0.094	56	0.1	6.631	A
B-A	21	269	0.078	21	0.1	14.522	B
C-AB	106	646	0.164	106	0.2	6.664	A
C-A	1170			1170			
A-B	8			8			
A-C	748			748			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	46	638	0.072	46	0.1	6.083	A
B-A	17	334	0.051	17	0.1	11.354	B
C-AB	86	684	0.126	86	0.1	6.030	A
C-A	956			956			
A-B	6			6			
A-C	610			610			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	38	666	0.058	38	0.1	5.740	A
B-A	14	382	0.037	14	0.0	9.800	A
C-AB	72	711	0.102	72	0.1	5.638	A
C-A	800			800			
A-B	5			5			
A-C	511			511			

2031 DM, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Braeburn Avenue	T-Junction	Two-way	0.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031 DM	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	920	100.000
B		✓	124	100.000
C		✓	961	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	18	902
	B	23	0	101
	C	903	58	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	0	0	0
	C	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.20	8.30	0.3	A
B-A	0.10	16.45	0.1	C
C-AB	0.11	7.03	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	76	635	0.120	75	0.1	6.424	A
B-A	17	359	0.048	17	0.1	10.516	B
C-AB	44	663	0.066	43	0.1	5.808	A
C-A	680			680			
A-B	14			14			
A-C	679			679			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	91	598	0.152	91	0.2	7.095	A
B-A	21	311	0.066	21	0.1	12.394	B
C-AB	52	626	0.083	52	0.1	6.269	A
C-A	812			812			
A-B	16			16			
A-C	811			811			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	111	545	0.204	111	0.3	8.287	A
B-A	25	244	0.104	25	0.1	16.422	C
C-AB	64	576	0.111	64	0.1	7.030	A
C-A	994			994			
A-B	20			20			
A-C	993			993			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	111	545	0.204	111	0.3	8.302	A
B-A	25	244	0.104	25	0.1	16.447	C
C-AB	64	576	0.111	64	0.1	7.033	A
C-A	994			994			
A-B	20			20			
A-C	993			993			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	91	598	0.152	91	0.2	7.113	A
B-A	21	311	0.066	21	0.1	12.413	B
C-AB	52	626	0.083	52	0.1	6.272	A
C-A	812			812			
A-B	16			16			
A-C	811			811			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	76	635	0.120	76	0.1	6.442	A
B-A	17	359	0.048	17	0.1	10.530	B
C-AB	44	663	0.066	44	0.1	5.816	A
C-A	680			680			
A-B	14			14			
A-C	679			679			

2031 DS, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Braeburn Avenue	T-Junction	Two-way	2.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031 DS	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	741	100.000
B		✓	206	100.000
C		✓	1171	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	49	692
	B	134	0	72
	C	1067	104	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.18	9.98	0.2	A
B-A	0.48	22.78	0.9	C
C-AB	0.18	6.99	0.2	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	54	535	0.101	54	0.1	7.479	A
B-A	101	443	0.228	100	0.3	10.462	B
C-AB	78	700	0.112	78	0.1	5.784	A
C-A	803			803			
A-B	37			37			
A-C	521			521			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	65	500	0.129	65	0.1	8.259	A
B-A	120	385	0.313	120	0.4	13.548	B
C-AB	93	670	0.140	93	0.2	6.239	A
C-A	959			959			
A-B	44			44			
A-C	622			622			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	79	441	0.180	79	0.2	9.925	A
B-A	148	305	0.484	146	0.9	22.337	C
C-AB	115	629	0.182	114	0.2	6.986	A
C-A	1175			1175			
A-B	54			54			
A-C	762			762			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	79	440	0.180	79	0.2	9.983	A
B-A	148	305	0.483	147	0.9	22.779	C
C-AB	115	629	0.182	115	0.2	6.991	A
C-A	1175			1175			
A-B	54			54			
A-C	762			762			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	65	499	0.130	65	0.2	8.307	A
B-A	120	385	0.313	122	0.5	13.779	B
C-AB	93	670	0.140	94	0.2	6.249	A
C-A	959			959			
A-B	44			44			
A-C	622			622			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	54	534	0.102	54	0.1	7.514	A
B-A	101	443	0.228	102	0.3	10.573	B
C-AB	78	700	0.112	78	0.1	5.798	A
C-A	803			803			
A-B	37			37			
A-C	521			521			

2031 DS, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Braeburn Avenue	T-Junction	Two-way	1.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2031 DS	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1011	100.000
B		✓	190	100.000
C		✓	987	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	103	908
	B	79	0	111
	C	913	74	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	0	0	0
	C	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.27	10.68	0.4	B
B-A	0.35	21.98	0.5	C
C-AB	0.15	7.71	0.2	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	84	564	0.148	83	0.2	7.478	A
B-A	59	383	0.155	59	0.2	11.088	B
C-AB	56	644	0.086	55	0.1	6.108	A
C-A	687			687			
A-B	78			78			
A-C	684			684			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	100	522	0.191	100	0.2	8.513	A
B-A	71	327	0.217	71	0.3	14.007	B
C-AB	67	604	0.110	66	0.1	6.694	A
C-A	821			821			
A-B	93			93			
A-C	816			816			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	122	460	0.266	122	0.4	10.626	B
B-A	87	251	0.347	86	0.5	21.758	C
C-AB	81	548	0.149	81	0.2	7.705	A
C-A	1005			1005			
A-B	113			113			
A-C	1000			1000			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	122	459	0.266	122	0.4	10.684	B
B-A	87	251	0.347	87	0.5	21.981	C
C-AB	81	548	0.149	81	0.2	7.711	A
C-A	1005			1005			
A-B	113			113			
A-C	1000			1000			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	100	521	0.192	100	0.2	8.568	A
B-A	71	328	0.217	72	0.3	14.133	B
C-AB	67	604	0.110	67	0.1	6.704	A
C-A	821			821			
A-B	93			93			
A-C	816			816			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	84	563	0.149	84	0.2	7.522	A
B-A	59	383	0.155	60	0.2	11.157	B
C-AB	56	644	0.086	56	0.1	6.120	A
C-A	687			687			
A-B	78			78			
A-C	684			684			

ATTACHMENT D

CHARLOTTE AVENUE
LINSIG RESULTS OF THE PROPOSED SIGNAL JUNCTION

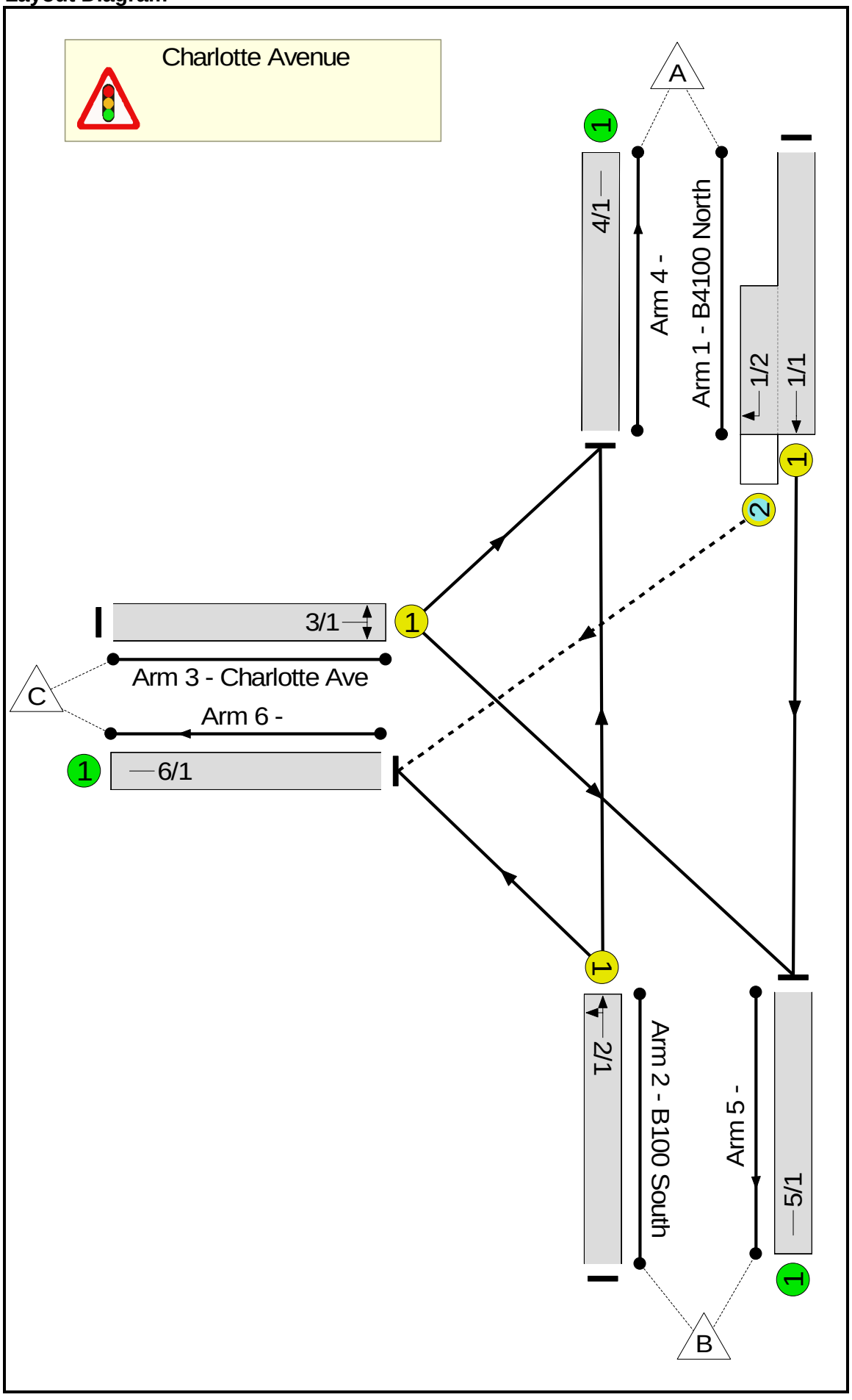
Full Input Data And Results

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Charlotte Ave traffic signals V1.lsg3x
Author:	
Company:	
Address:	

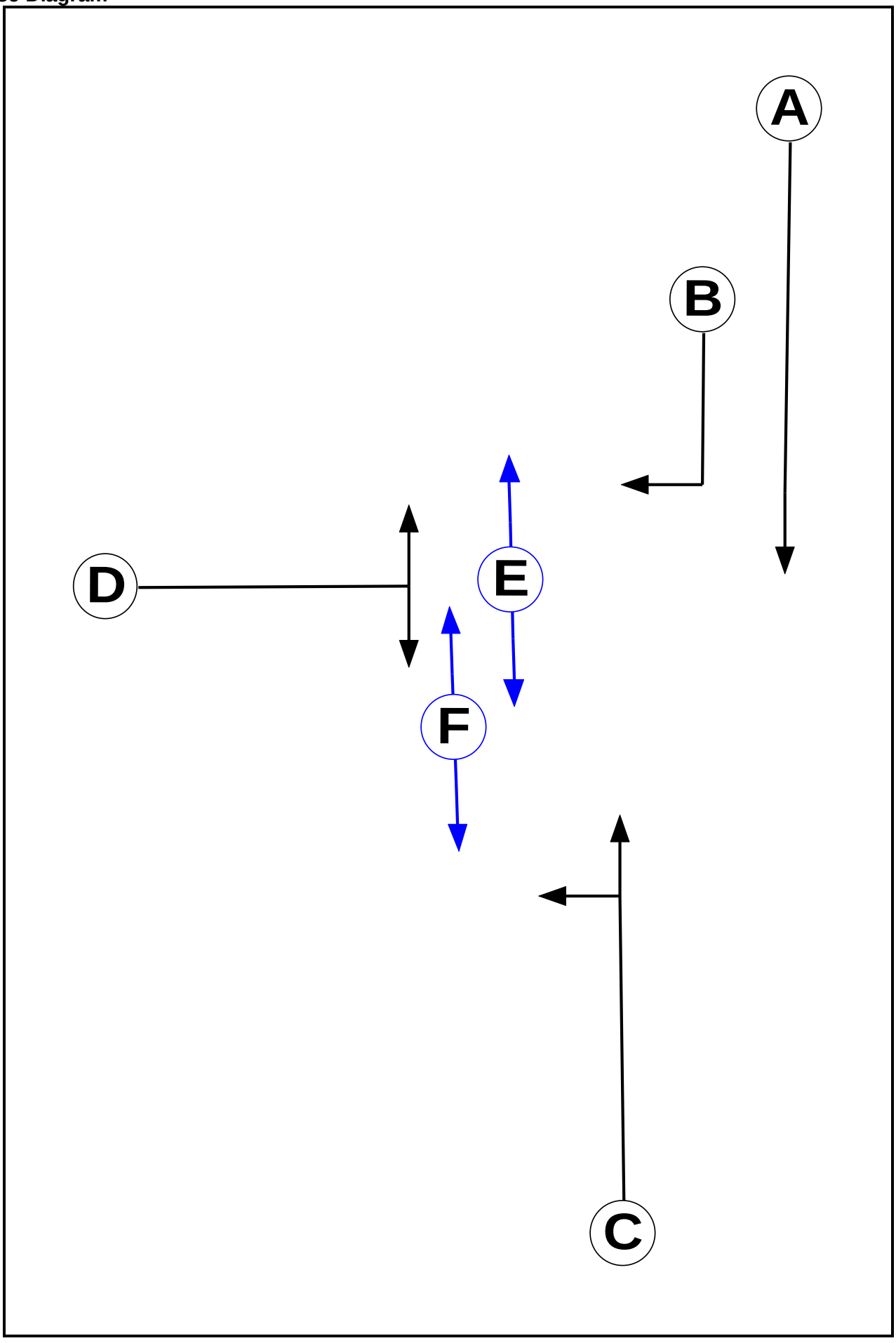
Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		6	6
F	Pedestrian		6	6

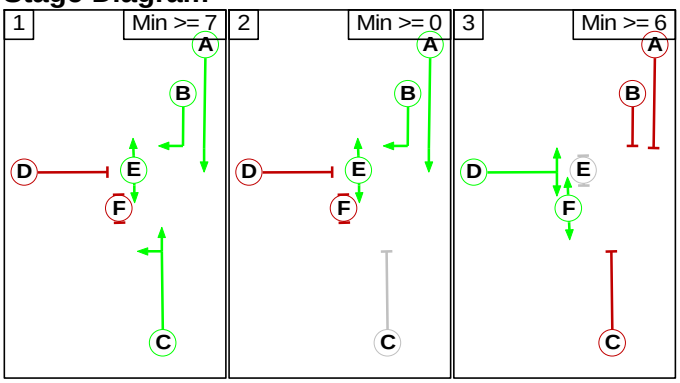
Phase Intergreens Matrix

		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A		-	-	5	-	10
	B	-		-	5	-	10
	C	-	-		5	-	8
	D	6	6	5		-	-
	E	-	-	-	-		-
	F	6	6	6	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B C E
2	A B E
3	D F

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1		0	10
	2	2		10
	3	6	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Charlotte Avenue

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/2 (B4100 North)	6/1 (Right)	1439	0	2/1	1.09	All	2.00	-	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: Charlotte Avenue

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (B4100 North)	U	A	2	3	60.0	Geom	-	3.80	0.00	Y	Arm 5 Ahead	Inf
1/2 (B4100 North)	O	B	2	3	6.0	Geom	-	3.70	0.00	Y	Arm 6 Right	8.00
2/1 (B100 South)	U	C	2	3	35.7	Geom	-	5.00	0.00	Y	Arm 4 Ahead	Inf
											Arm 6 Left	18.00
3/1 (Charlotte Ave)	U	D	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 4 Left	12.00
											Arm 5 Right	13.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2031 + Dev AM Peak'	08:00	09:00	01:00	
2: '2031 + Dev PM Peak'	17:00	18:00	01:00	

Scenario 1: '2031 + Dev AM Peak' (FG1: '2031 + Dev AM Peak', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1224	45	1269
	B	689	0	350	1039
	C	15	227	0	242
	Tot.	704	1451	395	2550

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2031 + Dev AM Peak
Junction: Charlotte Avenue	
1/1 (with short)	1269(In) 1224(Out)
1/2 (short)	45
2/1	1039
3/1	242
4/1	704
5/1	1451
6/1	395

Lane Saturation Flows

Junction: Charlotte Avenue								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B4100 North)	3.80	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1995	1995
1/2 (B4100 North)	3.70	0.00	Y	Arm 6 Right	8.00	100.0 %	1672	1672
2/1 (B100 South)	5.00	0.00	Y	Arm 4 Ahead	Inf	66.3 %	2057	2057
				Arm 6 Left	18.00	33.7 %		
3/1 (Charlotte Ave)	3.50	0.00	Y	Arm 4 Left	12.00	6.2 %	1761	1761
				Arm 5 Right	13.00	93.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2031 + Dev PM Peak' (FG2: '2031 + Dev PM Peak', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	982	14	996
	B	1003	0	225	1228
	C	10	190	0	200
	Tot.	1013	1172	239	2424

Full Input Data And Results

Traffic Lane Flows

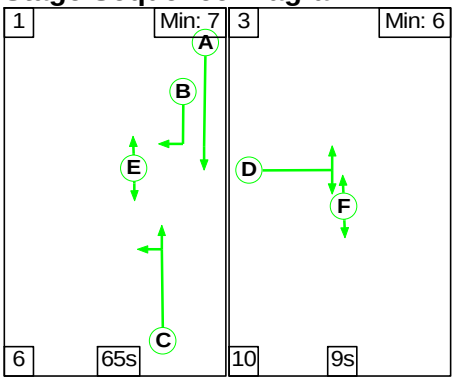
Lane	Scenario 2: 2031 + Dev PM Peak
Junction: Charlotte Avenue	
1/1 (with short)	996(In) 982(Out)
1/2 (short)	14
2/1	1228
3/1	200
4/1	1013
5/1	1172
6/1	239

Lane Saturation Flows

Junction: Charlotte Avenue								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B4100 North)	3.80	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1995	1995
1/2 (B4100 North)	3.70	0.00	Y	Arm 6 Right	8.00	100.0 %	1672	1672
2/1 (B100 South)	5.00	0.00	Y	Arm 4 Ahead	Inf	81.7 %	2083	2083
				Arm 6 Left	18.00	18.3 %		
3/1 (Charlotte Ave)	3.50	0.00	Y	Arm 4 Left	12.00	5.0 %	1761	1761
				Arm 5 Right	13.00	95.0 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2031 + Dev AM Peak' (FG1: '2031 + Dev AM Peak', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

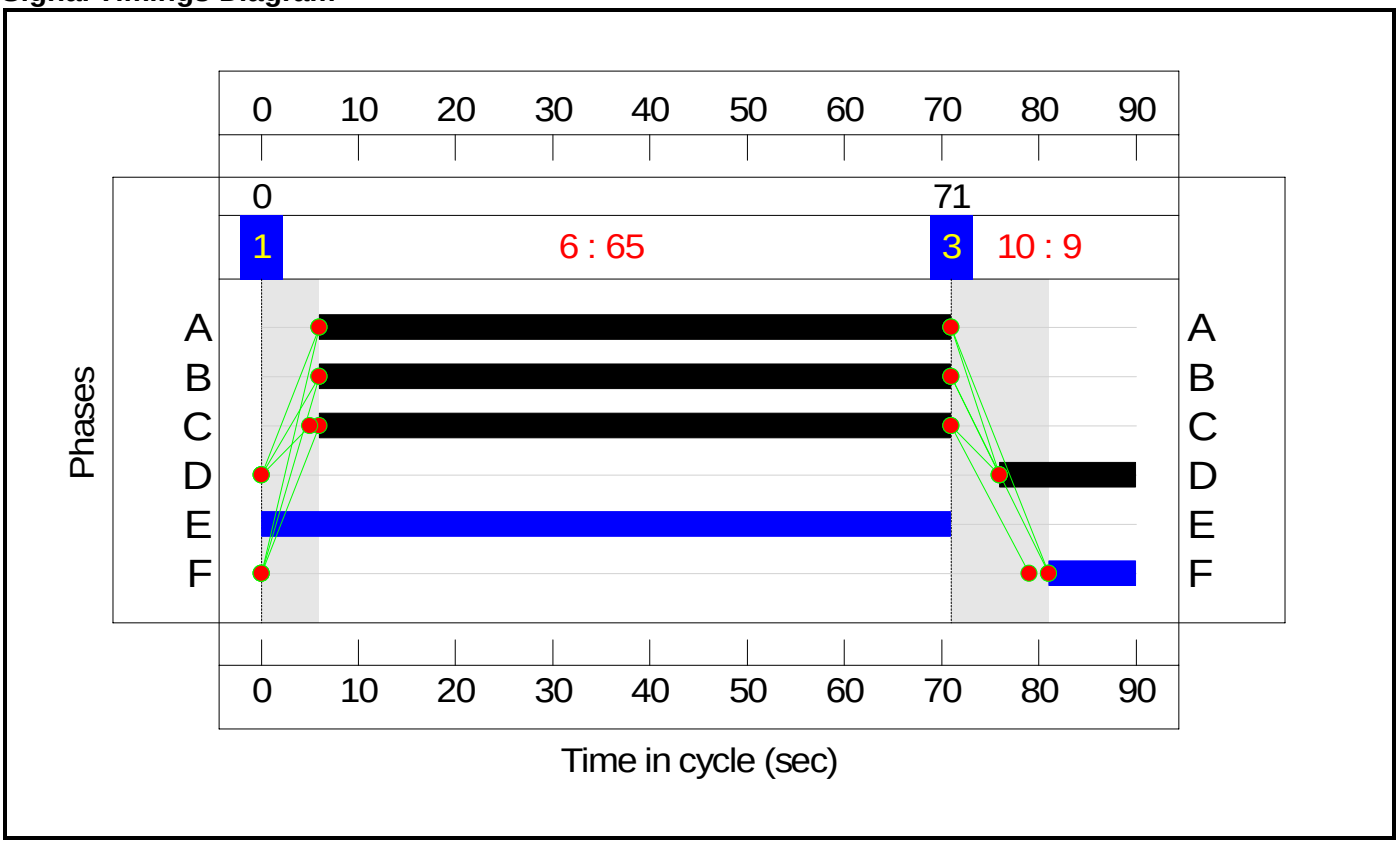


Full Input Data And Results

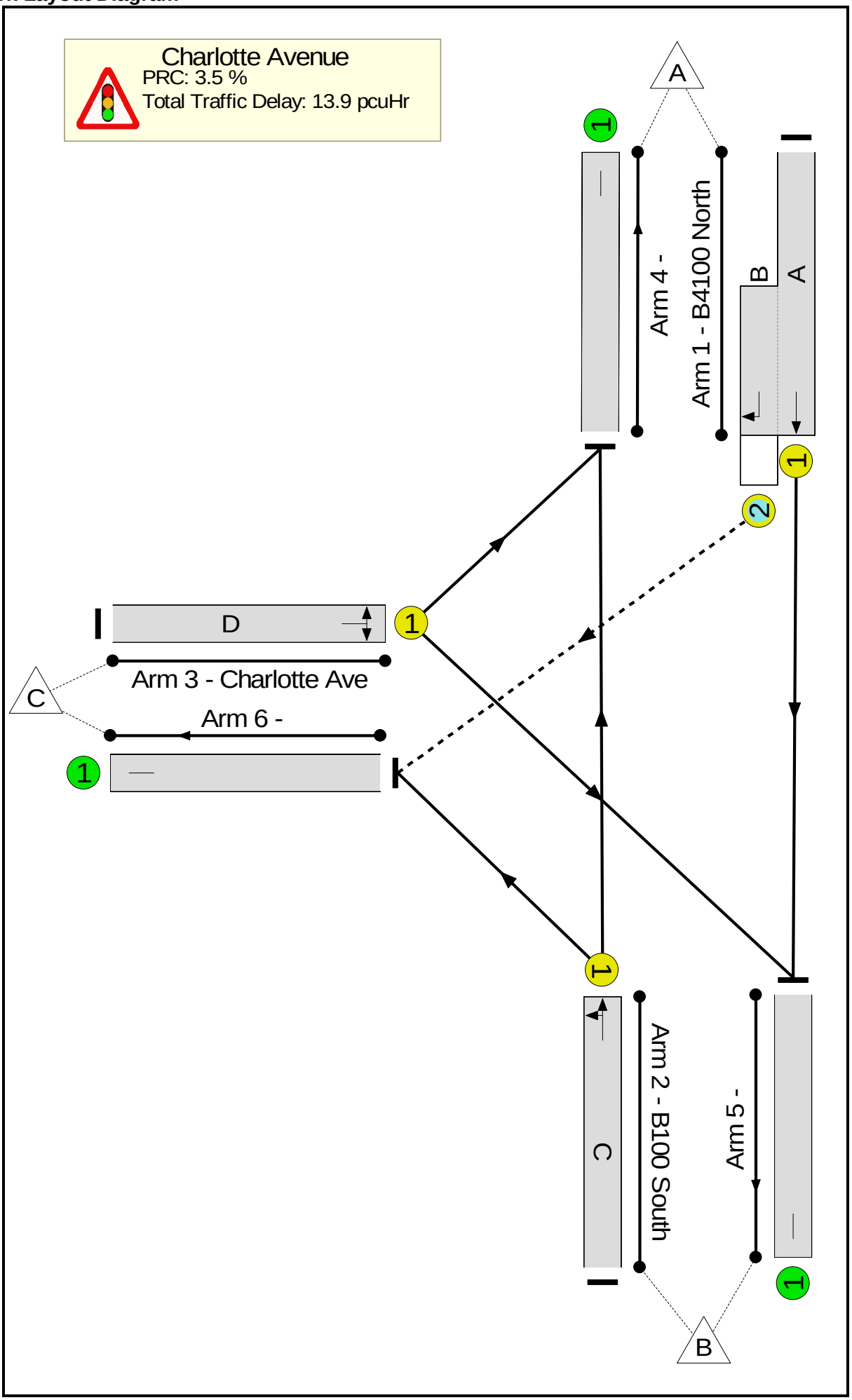
Stage Timings

Stage	1	3
Duration	65	9
Change Point	0	71

Signal Timings Diagram



Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**86.9%**
Charlotte Avenue	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**86.9%**
1/1+1/2	B4100 North Ahead Right	U+O	N/A	N/A	A B		1	65	-	1269	1995:1672	1408+52	86.9 : 86.9%
2/1	B100 South Ahead Left	U	N/A	N/A	C		1	65	-	1039	2057	1508	68.9%
3/1	Charlotte Ave Left Right	U	N/A	N/A	D		1	14	-	242	1761	294	82.5%
4/1		U	N/A	N/A	-		-	-	-	704	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	1451	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	395	Inf	Inf	0.0%

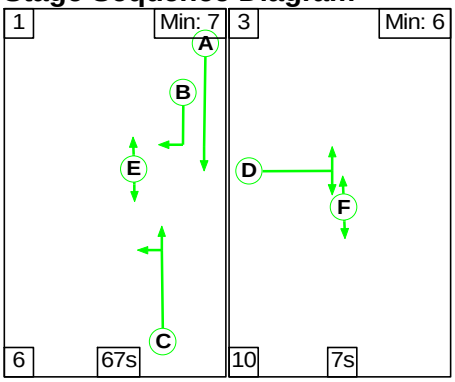
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**45**	**0**	**0**	**7.4**	**6.5**	**0.1**	**13.9**	**-**	**-**	**-**	**-**
Charlotte Avenue	**-**	**-**	**45**	**0**	**0**	**7.4**	**6.5**	**0.1**	**13.9**	**-**	**-**	**-**	**-**
1/1+1/2	1269	1269	45	0	0	3.1	3.2	0.1	6.4	18.1	22.7	3.2	25.9
2/1	1039	1039	-	-	-	1.9	1.1	-	3.0	10.3	13.9	1.1	15.0
3/1	242	242	-	-	-	2.4	2.2	-	4.6	68.5	5.8	2.2	7.9
4/1	704	704	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	1451	1451	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	395	395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 3.5 Total Delay for Signalled Lanes (pcuHr): 13.94 Cycle Time (s): 90
PRC Over All Lanes (%): 3.5 Total Delay Over All Lanes(pcuHr): 13.94

Full Input Data And Results

Scenario 2: '2031 + Dev PM Peak' (FG2: '2031 + Dev PM Peak', Plan 1: 'Network Control Plan 1')

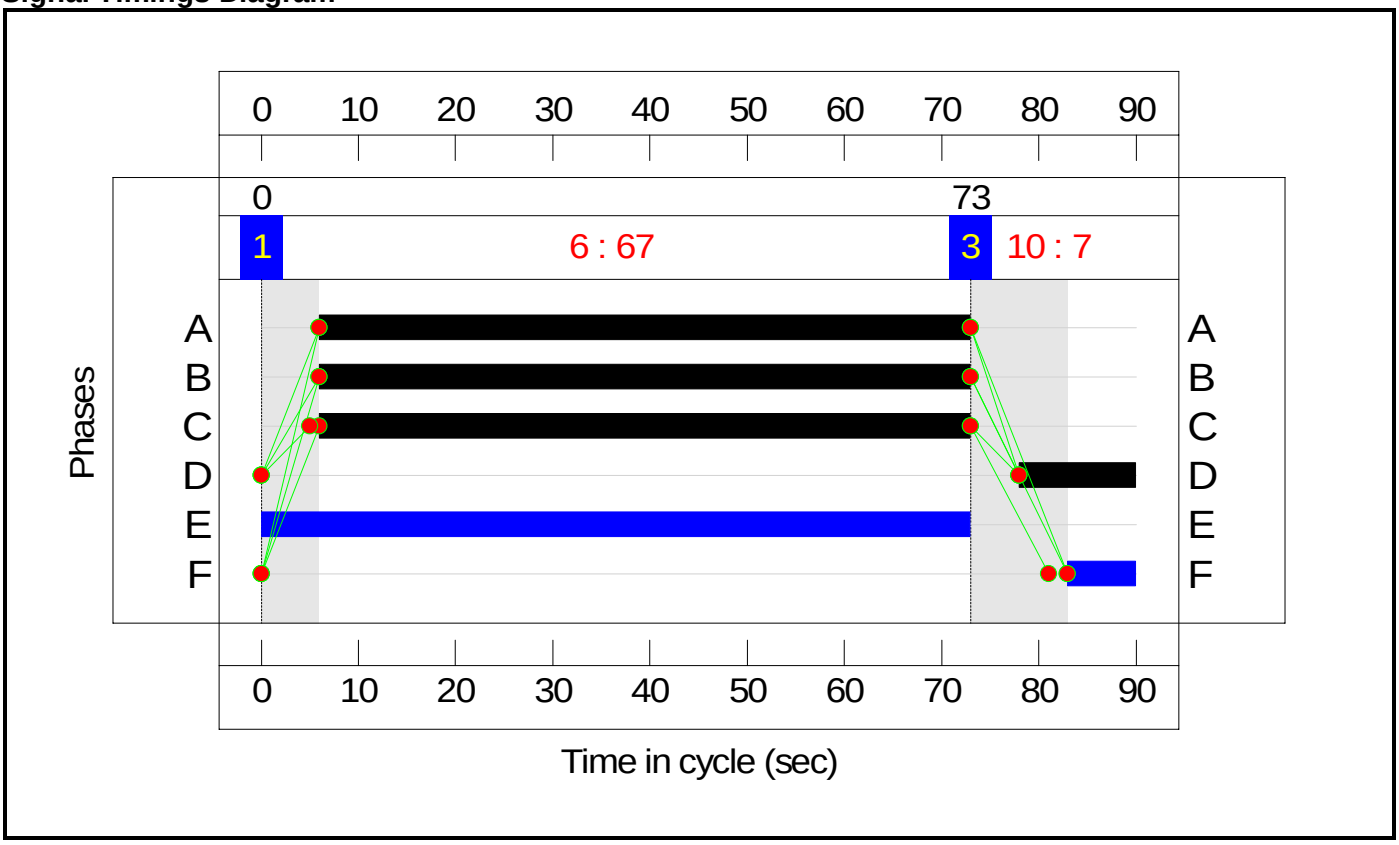
Stage Sequence Diagram

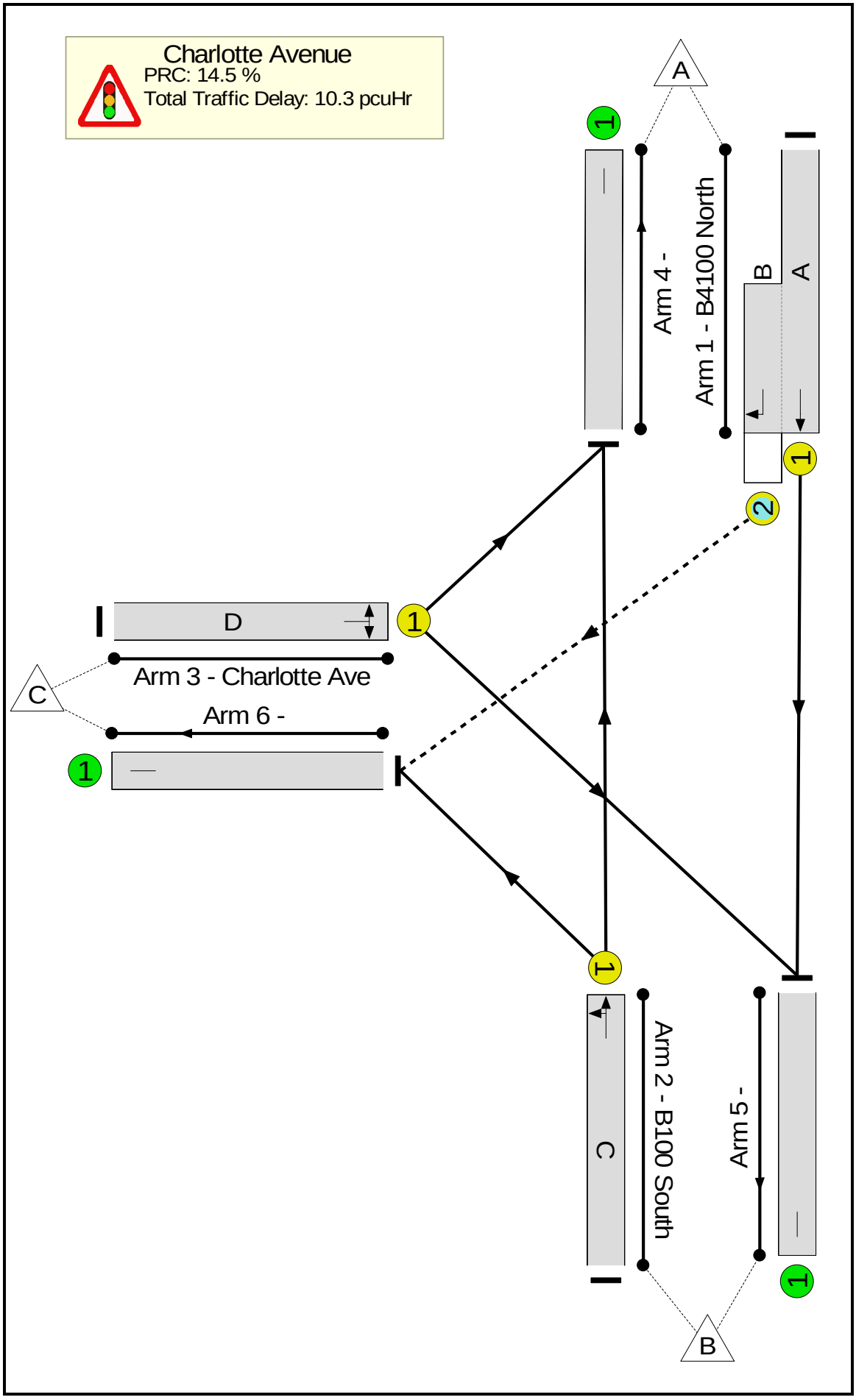


Stage Timings

Stage	1	3
Duration	67	7
Change Point	0	73

Signal Timings Diagram




Charlotte Avenue
PRC: 14.5 %
Total Traffic Delay: 10.3 pcuHr
A
B
C
D
Arm 1 - B4100 North
Arm 2 - B100 South
Arm 3 - Charlotte Ave
Arm 4 -
Arm 5 -
Arm 6 -
1
2

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.6%**
Charlotte Avenue	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.6%**
1/1+1/2	B4100 North Ahead Right	U+O	N/A	N/A	A B		1	67	-	996	1995:1672	1482+21	66.2 : 66.2%
2/1	B100 South Ahead Left	U	N/A	N/A	C		1	67	-	1228	2083	1574	78.0%
3/1	Charlotte Ave Left Right	U	N/A	N/A	D		1	12	-	200	1761	254	78.6%
4/1		U	N/A	N/A	-		-	-	-	1013	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	1172	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	239	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**14**	**0**	**0**	**5.8**	**4.5**	**0.1**	**10.3**	**-**	**-**	**-**	**-**
Charlotte Avenue	**-**	**-**	**14**	**0**	**0**	**5.8**	**4.5**	**0.1**	**10.3**	**-**	**-**	**-**	**-**
1/1+1/2	996	996	14	0	0	1.5	1.0	0.1	2.5	9.1	12.1	1.0	13.1
2/1	1228	1228	-	-	-	2.2	1.8	-	4.0	11.7	18.1	1.8	19.8
3/1	200	200	-	-	-	2.1	1.7	-	3.8	68.3	4.8	1.7	6.5
4/1	1013	1013	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	1172	1172	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	239	239	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 14.5 Total Delay for Signalled Lanes (pcuHr): 10.30 Cycle Time (s): 90
PRC Over All Lanes (%): 14.5 Total Delay Over All Lanes(pcuHr): 10.30

ATTACHMENT E

EXEMPLAR CONDITION 17 – DETAILS OF PARKING ON PHASE 1

NOTICE OF DECISION

TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)

Name and Address of Agent/Applicant :
A2 Dominion Group Ltd
c/o Barton Willmore LLP
Miss Alex Wilson
7 Soho Square
London
W1D 3QB

Date Registered : 27th December 2012

Proposal : Partial discharge of conditions 13, 14, 16 and 17 of 10/01780/HYBRID

Location : Bicester Eco Town Exemplar Site Banbury Road B4100 Caversfield Oxfordshire

Parish(es) : Caversfield Bicester Bucknell Chesterton

UPRN : 010011914562

CONFIRMATION OF CLEARANCE OF PLANNING CONDITION(S)

The Cherwell District Council, as Local Planning Authority, hereby CONFIRMS the clearance of the above condition(s). **IN ACCORDANCE WITH THE DETAILS OVERLEAF.**

Cherwell District Council
Bodicote House
Bodicote
Banbury
Oxon
OX15 4AA

Cherwell District Council
Certified a true copy

Head of Public Protection & Development Management

Date of Decision : 13th November 2013

Head of Public Protection & Development Management

SCHEDULE OF DETAILS

Condition 13: The details of the position of the bicycle and bin stores and their design for residential phase 1 as shown on drawing number AA2699C1.1/102 Rev D received on the 11 November 2013 with letter dated the 08 November 2013 and the detail of the refuse collection points as shown on drawing number AA2699C/1.1/117 received in the department on the 21 February 2013 with agent's letter of the 19 February 2013.

Condition 14: The details of the boundary enclosures for each dwelling within residential phase 1 as shown on drawing numbers AA2699C/1.1/017 Rev G and AA2699C/1.1/031 Rev A received in the department on the 28 October 2013 with agent's email of the same date and detail of the enclosures as shown on drawing number AA2699C/1.3/058 received in the department on the 05 August 2013 with agent's email of the same date and drawing numbers AA2699C/1.3/50, AA2699C/1.3/051, AA2699C/1.3/052 Rev A, AA2699C/1.3/54 Rev A and AA2699C/1.3/55 Rev A received in the department with the application.

Condition 16: The revised design of plot 376 as shown on drawing number AA2699C/1.3/032 Rev D received in the department with the application and the revised design of plot 319 as shown on drawing numbers AA2699C/4.1/210 Rev A and AA2699C/4.1/310 Rev A received in the department on the 20 June 2013 with agent's email and letter of the same date.

Condition 17: The parking scheme for residential phase 1 as detailed within 'Bicester Eco Town Parking Policy Statement' dated September 2012 and as shown on drawing number AA2699C/1.1/100 Revision L received in the department on the 31 July 2013 with agent's email of the same date and drawing number 12-1196-06 Rev P6 received in the department on the 05 July 2013 with agent's email of the same date.

PLANNING NOTES

This decision has been considered in the context of the information contained within the Exemplar Environmental Statement report number 0505-UA001881-UP31R-01 dated November 2010 produced by Hyder Consulting (UK) Limited.

Received with agent's email of the 31/07/2013.

Approved for Condition 17 - See decision notice.

notes

- The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be notified with the Architect before proceeding with the works.
- Where an item is annotated by drawings to different scales the larger scale drawing is to be worked to.
- Do not scale drawing. Figured dimensions to be worked to in all cases.

CDM Regulations 2007

ALL current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environmental Assessment Record.

date	rev.	revision/author/checker
18.11.2011		First issue; jsw
06.01.2012	A	Amendments to plots 319 + 376; jsw
02.02.2012	B	layout of area south of spine road amended; parking layout to community street 1 amended; jsw
16.02.2012	C	GA blocks updated to brick dims; plot frontages and boundary positions adjusted to coordinate with tree & services constraints; jsw
08.03.2012	D	GA blocks to affordable units adjusted to meet min HQE sizes; layout adjustments responding to tree / services constraints, analysis drg. [inc. 12.03.01] and site car tracking [inc. 12.03.05]; jsw
21.03.2012	E	GA blocks amended to include gable end windows to provide casual surveillance of adjacent parking areas; jsw
02.07.2012	F	Access to parking for plots 334-336 combined with parking area for flat block 3; removal of end terrace bays to plots 329, 339, 355 & 366; adjustment of boundary treatment materials as directed by client, adjustment of boundary positions to increase private amenity space of 5 bed units ; jsw
10.07.2012	G	Car Charging points added; jsw
17.07.2012	H	Energy centre added; jsw
04.09.2012	J	Car charging point removed with exception of 1No. for car club; jsw
01.10.2012	K	Internal layout and front door position of plots 337-339 amended ; jsw
29.01.2013	L	EV charging points reinstated and mandatory points [to comply with TP] highlighted ; jsw

purpose of issue: APPROVAL

project: BICESTER ECO TOWN EXEMPLAR SITE

drawing: Site Plan

PHASE 1

drawing no: AA2699C/1.1/100 rev: L

drawn: jsw checked: MDB

scale @ A1: 1:500 date: Nov 2011

PRP Architects © 10 Lindsey Street Smithfield London EC1A 9HP T +44 (0)20 7653 1200 F +44 (0)20 7653 1201 lon.prp@prparchitects.co.uk

Layout Name: AA2699C-11-100

Drawing Name: L:\AA2699C Bicester Eco Town\Dwg sheets\01 Feasibility\1-1\AA2699C-1.1-100.dwg

ATTACHMENT F

A4095/B4100 PROPOSED SIGNALISED JUNCTION

ISO A1 594mm x 841mm (scale may vary when printed)

Drawn:

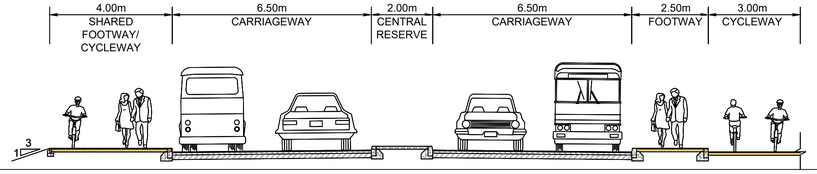
Approved:

Checked:

Designer: ---

Project Management Initials: P02.1

Revision:



TYPICAL CROSS SECTION A-A
SCALE - 1:100

Last saved by: VENKATA.ARAVINDGURRA(2021-09-21) Last Plotted: 2021-09-21
Filename: C:\pw\work\lang\aecom_ds09_uk_2020\dms\454749\60650764-ACM-HGN-ZZ-DR-HW-000014

AECOM

PROJECT

MHA OCC Banbury Road Roundabout, Bicester

CLIENT

OXFORDSHIRE COUNTY COUNCIL

OXFORDSHIRE COUNTY COUNCIL

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CONSULTANT

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NOTES

1. DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. CULVERT TO BE DESIGNED IN DETAILED DESIGN STAGE.

KEY

- PROPOSED CARRIAGEWAY AND RESURFACING
- INDICATIVE PROPOSED ROAD MARKINGS
- PROPOSED FOOTWAY/ SHARED PATH
- PROPOSED UN-TRAFFICKED HARDSTANDING
- PROPOSED VERGE / LANDSCAPING
- EXISTING SHARED FOOTWAY / CYCLEWAY
- PROPOSED CYCLEWAY
- PROPOSED RAISED TABLE
- PROPOSED RED BLISTER TACTILE CONTROLLED CROSSING
- PROPOSED CONTRASTING COLOUR BLISTER TACTILE UN-CONTROLLED CROSSING
- PROPOSED CONTRASTING COLOUR CYCLE TRACK / FOOTWAY TACTILE
- PROPOSED CONTRASTING COLOUR CORDUROY HAZARD TACTILE
- PROPOSED CULVERT LOCATION

ISSUE/REVISION

P01	17/09/21	First Issue
P02.1	20/09/21	First Issue
I/R	DATE	DESCRIPTION

ISSUE PURPOSE / SUITABILITY

INITIAL STATUS OR WIP

LOCATION PLAN

PROJECT NUMBER

60650764

SHEET TITLE

GENERAL ARRANGEMENT PREFERRED OPTION

SHEET NUMBER

60650764-ACM-HGN-ZZ-DR-HW-000014

VELOCITY
Transport Planning